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Educational News and Editorial Comment

THE LISTS OF SELECTED REFERENCES WILL BE CONTINUED

Beginning in January, 1933, the *Elementary School Journal* and the *School Review* joined in the publication of the "Selected References in Education." Since that date each journal has published monthly a selected, annotated list of references on some pertinent phase of education. It has been the purpose of the editors of the two journals to have these lists of references cover practically the whole field of educational literature.

In order to determine whether the readers of the two journals desire a continuance of this service and to determine the lists which are most useful to different classes of readers, the editors addressed the following questionnaire to those persons who recently renewed their subscriptions.

APPRAISAL OF BIBLIOGRAPHICAL SERVICE

In order to make the bibliographical service in our journals as valuable as possible, the editors would like your response to the following questions concerning the lists of selected references being published monthly in the *Elementary School Journal* and the *School Review*. If you care to do so, will you please check the lists that have been most useful to you.

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Boston University
School of Education
Library

ELEMENTARY SCHOOL JOURNAL	SCHOOL REVIEW
.....Public-school administration	Secondary-school
Preschool and parental	.....instruction
.....education	.....The extra-curriculum
Kindergarten-primary	.....Educational psychology
.....education	Statistics and test
.....Foreign education	.....construction
Elementary-school	.....Guidance
.....instruction	Organization of
.....Exceptional children	.....secondary education
.....Teacher education	Administration of
	.....secondary education
	.....Higher education

Would you prefer that an additional article be substituted in the space used by the lists of selected references? (Underscore) YES NO

The replies indicate very definitely that the great majority of readers of both journals desire a continuance of this bibliographical service. Only about one-sixth of the readers of the *Elementary School Journal* prefer that articles be substituted for the space now used by the lists of selected references. Practically all classes of subscribers—principals, superintendents, members of college and university staffs, and classroom teachers—find the lists useful. The evidence indicates too that many readers of the *Elementary School Journal* make use of the lists published in the *School Review*, and vice versa. This fact is evidence of the comprehensive character of the reference lists.

In view of the subscribers' attitude with respect to the usefulness of this bibliographical service, the editors of the *Elementary School Journal* and of the *School Review* feel justified in continuing to provide it.

THE SCHOOL AND A PLANNED SOCIAL ORDER

A great deal of discussion has been heard of late with respect to the relation of the school to social change. An analysis of this discussion reveals at least three distinct points of view concerning the function of the school as an agency of social control and direction. First, there are those who would make the school an instrument of social, economic, and political quietism. To them the social mission of the school is the maintenance of the status quo. They would deny to

teachers freedom of discussion of vital current social and economic problems. They would have the school develop in youth an emotional attachment to the prevailing social philosophy and an uncritical acceptance of the order of things as they find it. A second group, and one which has pressed its point of view vigorously in recent months, insists that the school be made an instrument for implementing such social policy as teachers may deem desirable. The members of this group would have the teachers of the nation formulate a plan of social reconstruction, and they would employ the school as a means of carrying that plan into operation. They place squarely on the school the responsibility of creating a new social order. A third group, composed of progressive realists, regards the development of social intelligence as the essential social mission of the school. These people would extend to teachers and pupils alike complete freedom of discussion of all issues and all institutions, the social and intellectual immaturity of pupils being the only bar to such discussion. They would have pupils trained to gather evidence and to evaluate it critically. They believe that it is the function of the school to make the pupil as intelligent as possible with respect to the social order in which he is to live, but they believe that the school cannot and should not press upon the pupil the acceptance of specific plans of social organization or specific formulas for the solution of social problems. They believe that a citizenry with a critical understanding of the existing pattern of economic and social organization can be trusted to formulate and to carry into execution its own social policies.

In an editorial appearing in a recent issue of the *Educational Research Bulletin*, Professor W. W. Charters, of Ohio State University, so clearly and admirably states this third point of view that we feel justified in quoting the editorial at some length. We quote it, too, because it expresses our own opinion of the matter.

> That there is a need for a changed social order is accepted by millions of farmers, laborers, professional people, and industrialists. The old order has not been healthy for a generation, and the depression has delivered blows to its chin and solar plexus so ferociously that it is groggy, though not completely down and out. The situation is therefore serious. No one doubts that changes must be made and that they are now taking place with a tempo of dazzling speed. No one can justly claim that the schools have been doing their duty to make the citi-

zens of today, who were the adolescents of yesterday, well informed about current political and social problems and intelligent about devising new plans of action. They have evaded the disputed subjects of national political and social conflicts in the classroom. They have not made the citizenry which has gone through high school or college better informed or more active than those who have completed only the grades of the elementary school.

They have had good reasons for the evasion. One is that teachers are not themselves well informed on social and political issues; the other is that whenever such issues are handled by teachers in school, the parents of the children push for reprimand and even dismissal of the offenders. And since the teachers are not martyrs and since they know little about political and social matters, it is natural that, in general, they should not seek for trouble by studying and discussing controversial issues in the classroom.

The left wing is correct in the feeling which prompts its statements. The schools are graduating future citizens without training them how to reach deliberate conclusions about what to do both during crises and before and after the events have happened. The schools have such an obligation, and this the left wing seems to feel with deep intensity.

The method, however, of meeting the situation by formulating a better plan and indoctrinating children will not work. Clearly, a realist cannot claim that nine hundred thousand teachers nor even fifty thousand university professors can agree on a best plan or even a good plan. In fact, if the fifty most prominent members of the left wing attempted to formulate a plan in sufficient detail to give it teeth, they themselves could not agree. And even if teachers did agree upon a plan, there is no likelihood that it would be so good that they would be justified in indoctrinating high-school boys and girls.

The school is performing its social mission when it considers the problems in conflict and dispassionately provides all available and pertinent data for the children to reach their own conclusions. The schools should be satisfied to graduate students who are informed, who know where to find facts and how to organize them into what seem to be valid conclusions. As citizens, teachers have the inescapable duty of forming their own conclusions and working for their acceptance in the forum; but in the classroom their business is to teach children how to become well-informed and thoughtful students, capable of thinking for themselves.

This the schools have not been doing on a national scale, and if the left wing by discussion, exhortation, and example can incite large numbers of teachers to take on this responsibility, it will have performed an important service. That they want to induce a quarter of a million high-school and college teachers to devise and propound a planned social order is not important because it cannot be done. Their important contribution is to stimulate the schools to pay adequate attention to the problems of the nation in such forceful fashion that a well-informed citizenry will be available to do the best it can to solve our national problems. An intelligent nation can be trusted to work out its own destiny.

Authority of School Boards to Refuse Re-employment to Teachers

A parish school board in Louisiana adopted a resolution to the effect that it would not employ as teachers for the ensuing year any persons who did not support and vote for a special school tax nor would it employ anyone whose parents voted against the school tax. Action was brought to compel the school board to execute contracts with certain persons who had taught in the parish the previous year and who had been recommended for positions by local school directors within the parish. The court refused to grant the writ of mandamus prayed for, on the ground that the reason which a board of education may have for not re-employing a teacher is not subject to judicial inquiry (*Lanier* v. *Catahoula Parish School Board*, 154 So. 469). The court said:

> There is no binding employment on the part of the school board or the teacher until the written contract between them is executed by both parties thereto. Prior to the signing or execution of the contract, either the teacher or school board may withdraw from any former agreement without any reason and without liability on the part of either, for the reason that there is no binding contract or agreement until the written contract is executed.
>
> The reasons set out in plaintiffs' petition for the school board's failure to contract with plaintiffs, namely, the resolution quoted above, has been rescinded by the school board, as is admitted by counsel for both plaintiffs and defendant, and is so stated in the written opinion of the district judge. Although this resolution was vicious, contrary to public policy and good morals, as well as being contrary to the very principles of the democratic form of government, in that it was an attempt to prevent free and independent thought and action and to destroy the right and privilege of independent voting, what difference can it make in this case?
>
> The school board had the power, as did the plaintiffs, to refuse to enter into a written contract, which is the only contract of employment of teachers in public schools recognized in our law, without the giving of any reason. Therefore, whether the reason is bad, good, or none given at all, it can make no difference.

Announcing the "Social Frontier"

During the summer came the first announcement of a new educational periodical, the *Social Frontier*, which will carry the subtitle "A Journal of Educational Criticism and Reconstruction." The editor is to be Professor George S. Counts and the associate editors, Mordecai Grossman and Norman Woelfel. The board of directors

of twenty-five members is composed of acknowledged educational and social liberals, the majority being connected with Teachers College and Columbia University and most of the remainder with other institutions in New York City.

One may judge from the announcement that this journal is not to be just another educational periodical. In these days, when educational journals already in existence are having trying times, it would be unfortunate if another, no different from the rest, were injected into an already overworked field. On the contrary, we are informed, in bold-face type and in most emphatic terms, that the new enterprise is being developed "to answer the urgent need of the profession for a journal in whose pages the whole complex of American culture as it relates to education will pass in critical and constructive review," "a journal expressly created to serve the emerging consciousness among American teachers that they must participate fully in the social processes now reshaping the fundamental pattern of American life," "a journal in whose pages the major battles of education during the coming decade will be intelligently fought out," etc. The keynote of the new journal seems to be struck in a quotation from the concluding report of the Commission on the Social Studies of the American Historical Association, assigned to a prominent place in the announcement: "The age of individualism and laissez faire in economy and government is closing, and a new age of collectivism is emerging."

The first issue is announced for October. The yearly subscription is two dollars. The office of publication is 66 West Eighty-eighth Street, New York City.

A Proposed Reorganization of the State Board of Education in California

The following statement is quoted from the *Sierra Educational News*.

> California Teachers Association is putting before the voters of California at the November election an amendment to the constitution which makes the state board of education elective rather than appointive by the governor, as it is at the present time. . . . .
>
> California has an unsatisfactory state organization for its educational system. We have a superintendent of public instruction elected by the people of the

state at the same election at which a governor of the state is elected. The governor under our present organization appoints the state board of education, with which the superintendent of public instruction must work. This poor organization has been responsible for some very difficult situations in the past, handicapping the welfare of public education.

This amendment calls for a new organization in the state department of education whereby the people of the state select their board of education. This board in turn selects the director of education who serves at the will of the board and at a salary determined by the board. Our present superintendent of public instruction and his immediate predecessors have served the schools of this state at unreasonable personal financial sacrifices. If California expects to maintain indefinitely a public-school system that is worthy of the best interests of childhood, she must not continue the present organization and must not expect able state superintendents to continue indefinitely to render educational leadership for a financial return that is entirely out of keeping with the importance of the office.

The reorganization of the state department of education is a matter of outstanding importance and significance to the future welfare of the public-school program of our state. The children of California deserve the best possible type of educational organization, insuring a board of education elected by the people for only one purpose, that of determining the educational policies of the state, and administered by a director of education whose entire time can be given to his professional obligations.

A Plea for More Extended Use of Motion Pictures in Education

In a recent volume entitled *Motion Pictures in Education in the United States,* Cline M. Koon, senior specialist in radio and visual education of the United States Office of Education, urges vigorously a more extended use of motion pictures in the schools of this country. He points out that numerous experiments demonstrate that the use of visual materials "enriches and vitalizes instruction; effects an economy of time and money in instruction; increases initial learning; increases permanence of learning; aids in teaching backward children; increases interest, attention, self-activity, and voluntary reading." Despite these demonstrated advantages of the motion picture as a medium of instruction, the facts indicate that less than 10 per cent of the schools of the nation make systematic use of motion pictures for instruction. Data gathered from surveys indicate that the following causes explain the failure to use motion pictures:

1. The expense of projectors and films.
2. Lack of instructional films up to the last few years.
3. Lack of understanding of the values of the film in instruction.
4. Insufficient technical skill of teachers in the use of motion-picture projectors and films.
5. Failure to correlate films with the curriculum.
6. Failure of school officials to adapt available films to the curriculum.
7. Failure of administrative officers to budget money for film material.
8. Failure of professional teacher organizations to give proper recognition to visual education in their programs.

Much of the retardation in the development of motion pictures is charged to the last-mentioned cause. It is pointed out that little or no consideration has been given to visual education in the programs of national and state educational associations. Only once in ten years has the subject had a place on the general program of the National Education Association, and in only seven states has it ever had even a minor place on the programs of the state teachers' associations. There is evidence, however, of increased interest.

Happily, this picture of the educational situation in its relation to the use of motion pictures has been brightened by definite trends from various directions. The press, for one thing, is disseminating information concerning the values of motion pictures. Entire issues of educational journals are being devoted to the use of visual aids. Several excellent books have recently been published in this field. Metropolitan newspapers are devoting considerably more space to the discussion of the use of motion pictures in classrooms and the particular values of these pictures. Several excellent books have recently been published in this field, and school systems are issuing booklets or manuals for the use of visual aids. . . . .

There has been an increase in the number and complexity of investigations in the use of motion pictures. Both the talking and silent pictures are being investigated in their relation to learning by the leading schools of education of the country. These investigations are being carefully and elaborately planned, and the results show increasing reliability. Furthermore, the influence of the theatrical motion picture has been studied by outstanding investigators as previously reported.

In recent years there has been a growth of films for instructional purposes. A wealth of excellent material has been produced by leading universities and several motion-picture corporations. These films cover many different subjects taught in public schools and colleges. . . . .

Furthermore, teachers' colleges are rapidly organizing courses in visual instruction. In 1927, 82 colleges offered visual-education courses during their summer sessions. In 1932, this number had increased to 212. One state has

made a course in the use of visual aids mandatory for all preservice teachers, and other states are undertaking similar movements.

The following statement is made with respect to certain essentials in introducing films in teaching.

In spite of the values of films, the increase in instructional films, the demand for teacher training in projection technique, the elaborate experimentation with motion pictures, the popularity of films, the influence of films on American life, and the desire of educational leaders to improve the quality of instruction, the fact remains that the film has not been given its proper place as part of school equipment. This failure can be charged to an inexcusable indifference on the part of both administrative officers and school teachers. In defense of these educators it should be pointed out that the scarcity of films correlated to subjects in the curriculum and the expense and difficulty in securing them are important factors in determining the attitudes of the educators. To overcome this inertia several suggestions become necessary. . . . .

A first essential in the systematic introduction of the motion picture in the schools of our country is the necessary preparation on the part of teachers. This can be accomplished if supervising officials and the presidents of teacher-training institutions can be aroused to their responsibility in the matter. State departments of public instruction can help bring this about through conferences with superintendents of schools, through having teacher-training institutions offer visual-education courses, and by requiring teachers to take such a course before they are licensed to teach. In this connection, a summary of the experimental data on the use of films in the classrooms, techniques of their use, comparative values, correlation with the curriculum, etc., should be made available for study on the part of all teachers and school officials in the country.

A second essential is the adaptation of films to the various instructional units, i.e., establishing the definite relationship of the film to the unit of instruction, and indicating just where the film should be used. Various producers of educational films have encouraged experimentation by educators to integrate films with various units of instruction. Freeman and Wood gave this problem considerable attention. Later, Arnspiger made a valuable contribution on the usefulness of sound pictures in teaching certain units of instruction in natural science and music. A recent publication, *Modern Trends in Education* (a syllabus for a teacher-training course utilizing educational talking pictures [Erpi Picture Consultants]), can well serve as a model for those who undertake the work.

A third and very important essential is the matter of appropriating money in the annual budget for the purchase of films for the use of school districts. It is ridiculous to expect parent-teacher groups, civic organizations, or philanthropic citizens to supply necessary equipment for the schools. The responsibility belongs to the school boards. The public schools are the most important enterprise with which the state is concerned, and steps should be taken to have the legislatures appropriate sufficient money so that this material can be supplied for instructional use.

Specialization in Child Development at the University of Chicago

The University of Chicago has recently set up an organization to provide for specialization in child development at the graduate level. The plan furnishes a general background of instruction in the basic sciences contributing to an understanding of child development, such as psychology and biology, and of the social institutions which exert the chief influence on the child's development, such as the school and the family. It also provides the opportunity for specialization and research in any aspect of development, such as physical growth, mental growth, behavior, nutrition, education, the influence of social factors, and heredity and environment.

For the present the programs of instruction and research are organized and supervised by the Department of Education in co-operation with the University Committee on Child Development. This Department accepts programs of work, planned and carried out in each case with the supervision of a special committee, which include appropriate courses in any department of the University. Departmental requirements have been modified in the case of students of child development to make possible the inclusion of appropriate work from other departments. The committee which supervises a student's program includes a representative of the Department of Education, a representative of the Committee on Child Development, and a representative of the department in which the student's research lies.

The University of Chicago has for some time had a considerable list of courses of instruction in this field, facilities for research, and laboratory schools, including a school for problem children. It now has the machinery by which these facilities can be effectively utilized by the student who wishes to specialize in child development.

Maryland's New Program for Training Elementary-School Teachers

The State Board of Education of Maryland has decided to increase to four years the length of the courses offered at the three state normal schools for white students. Hereafter the county students who enter the normal schools will enrol for a four-year course leading to

the degree of Bachelor of Science in Elementary Education. At the request of the school commissioners of Baltimore, a three-year course will continue to be offered at the State Normal School at Towson for the preparation of teachers in Baltimore. Heretofore all the normal schools in Maryland have offered three-year courses.

The considerations which led to the action of the board are described in the following statement prepared by Albert S. Cook, state superintendent of schools.

The work of the elementary-school teachers in imparting knowledge, forming habits, and molding character is as important as the task of any other group of teachers, and the group of pupils with which the elementary-school teachers work is by far the largest section of the school population. Their training should, therefore, be equal to that which has long been required of high-school teachers —four years beyond high-school graduation. The growing complexities of modern life make it essential that the teachers have wide knowledge of subject matter, vision of the possibilities of children's interests, and a knowledge of the sources of more information and of community resources for the children's contacts. Teachers must be able to express themselves with clarity, accuracy, and force in spoken and written English. They need to be intelligently concerned with the problems of contemporary life and social institutions and must teach with a view of world-betterment. They must be able to accept new attitudes in science.

The additional year will be used to give a broader subject-matter background in elementary subject-matter fields, including the social studies, literature, science, and probably economics to be added in the sophomore year. The related subject matter will enlarge both the teachers' and indirectly the pupils' horizon and will enrich and make much more valuable the elementary-school course offered in Maryland. The professional work in the normal schools, including practice teaching, will not be increased.

The recent lengthening of the normal-school courses from two to three years has resulted in marked improvement in the poise, maturity, and cultural background of the graduates, and the addition of a fourth year will enable the schools more nearly to meet the demands made of the present-day elementary-school teacher. Leading thinkers in teacher training are agreed that four years are necessary for equipping elementary teachers, and the more progressive states, including those bordering on Maryland, have already raised their standards to this point.

It is believed that a better student personnel will be attracted to the normal schools by the longer course. As a rule, the stronger high-school graduates wish to study for at least four years after leaving the high school and wish to qualify for degrees. In these respects the normal schools will now offer opportunities comparable with those of the liberal arts or other professional colleges, and a

prestige will be given to elementary-school teaching which it has not known before and which will attract the thoughtful and able high-school graduate. Some who might have used the two- or three-year course (inexpensive alike in time and in money) as a stepping stone to another profession will be less likely to consider devoting four years to preparation for a task in which they will engage for only a short time. The profession will thus be relieved of teachers whose primary interest does not lie in their school work, and the overcrowding in the profession will be advantageously reduced. Furthermore, graduates with four years of special preparation rather than three will more likely be successful beginning teachers, and the turnover in the schools, always a drawback to the most effective work, will be lessened.

The fact that there is now an oversupply of candidates for elementary-school teaching makes the present an auspicious time to lengthen the normal-school course, since there will probably be no shortage of qualified teachers during the transition period. Moreover, the students in the normal schools as well as the county superintendents are enthusiastically in favor of the change, and some of the present students who will doubtless return for the fourth year will form an excellent group with whom to inaugurate the new course.

The graduates of the four-year courses with a rich background of subject matter will constitute a strong group from which to recruit teachers for junior high schools as this type of school gradually develops in the larger centers.

No increase in the normal-school budgets is necessary for the immediate adoption of the four-year course.

The State Normal School, which trains teachers for the colored elementary schools and which is located at Bowie, will increase its course from two to three years, beginning with the students entering in September, 1934.

The significance of the action of the Maryland State Board of Education does not lie in the mere fact that the normal schools will henceforth offer a four-year course for teachers in the elementary schools. It lies rather in the clear recognition of the need for a more liberal education on the part of elementary-school teachers. The additional year's work, it will be noted, will not include additional professional subject matter. This emphasis on a more liberal education for elementary-school teachers is to be highly commended. The time has come in American education when the elementary-school teachers of the nation must be given a more liberal education, with special emphasis on the social studies. It is to be hoped that other teacher-training institutions will follow Maryland's example.

A New Clearing-House of Information on School Legislation

The Legislative Commission of the National Education Association has established a state school legislative reference service which will attempt to provide a clearing-house of information on the major aspects of school legislation. The reasons for establishing this service and its scope and limitations are described in the following statement.

Sound state school legislation constitutes an important element in educational progress. Under present conditions it is impossible to create good schools without good school laws. School legislation which is planned in advance, which is continuously interpreted to the public, which capitalizes the experience of other states, and which is built upon the facts revealed by careful study, can lead to far-reaching improvements in the several state school systems. Because school legislation is of continuing importance, it seems desirable to give increasing attention to the study of problems in this field. . . . .

What the service will do

1. Collect information on the trends and current status of school legislation in the forty-eight states relating to such topics as finance, instruction, buildings and equipment, school districts, pupils, teachers, schools and classes, school organization, commissions and surveys.

2. Answer inquiries on the progress of such legislation, by furnishing topical summaries of state school legislation and by lending copies of significant school laws.

3. Continue to publish a yearly summary of state school legislation.

4. Call attention to important legislative summaries issued by public and private agencies, such as the United States Office of Education, American Legislators' Association, National Tax Association, or National Industrial Conference Board.

5. Investigate the possibility of outlining the content of model legislation on educational problems.

What the service will not do

1. In the absence of a careful, first-hand investigation of conditions, the service cannot undertake to draft bills or to appraise any legislation proposed or enacted.

2. Since the service is primarily concerned with supplying information, it will not organize or support any local legislative campaign.

3. The service will not duplicate the work of existing agencies.

Regular reports from the field

An attempt will be made to obtain from authoritative sources in each state the following material: (1) an annual summary of school legislation introduced in the state legislature; (2) a monthly statement during the legislative session, indicating the progress of important school measures before the legislature; (3) copies of major education bills; (4) information concerning important legislative commissions and surveys.

The University of Chicago Announces a New Policy

The following statement is quoted from the *Christian Science Monitor*.

A new type of college student is being developed at the University of Chicago. He is the "student at large." In its policy of liberalizing the higher education, the University has opened its doors without orthodox restrictions to anybody who can carry its courses, regardless of what schooling he has had.

Thus the University aims to provide a New Deal for the nearly forgotten man who has ability yet cannot fulfil the formal academic requirements but wants a college education nevertheless.

Instead of presenting academic credentials or taking the usual comprehensive entrance examinations, the "student at large" will be admitted to the University on the basis of his ability and experience and general fitness for pursuing the studies of his choice.

Tradition of several hundred years relating to admission to college was swept away with this statement of policy adopted recently by the University Senate, its governing body:

"Students qualified for admission to the University, who are interested in further study but do not desire to register as candidates for a degree, shall be admitted as students at large in the University and be given the privilege of attending lecture courses and of using the library and other such facilities of the University as the appropriate dean and the instructor may recommend."

In explaining the plan further, the University said: "Enrolment as students at large will be permitted anyone who can demonstrate ability and fitness, either through experience or special training, to do college or university work, regardless of formal qualifications. They will not be enrolled as candidates for degrees, but under the flexible provisions of the New Plan, should they wish to acquire this formal badge of education they will be permitted to take the examinations testing achievement."

Much freedom is given the entrance authorities in admitting "students at large." The candidate for entrance is to be given an examination, but it is a very different kind of examination from the comprehensive entrance tests usually given. It is to be purely an oral, personal kind of examination, in most cases consisting of questions such as how far he has traveled, what kind of work he

has done, what he has written, what he has read, what he has studied on his own, what he has thought.

If he has written a book that has taken several years of preparation, if he has, for example, worked for some years in the newspaper business where he has had first-hand contact with politics, public affairs and public people, they may feel that he should be able to swing a university course.

Two types of students in particular are expected to be attracted under the new plan. The first are persons of some maturity who want to continue their education, whether it has been acquired in school or out, and might have been barred from university courses because they lacked the formal prerequisites. The second are high-school students of unusual ability who want freedom to plan and follow their special educational interests untrammeled by degree restrictions and unhampered by entrance requirements.

Recalling that the lot of the unclassified had always been something like that of a "poor relation," Dean Emery T. Filbey, who is dean of faculties, said he had always been somewhat of a minus quantity in the regular educational scheme.

"From now on," Dean Filbey said, "we want the students at large to have as respectable standing in the University as other students, and to be free to plan the kind of courses they desire regardless of their formal preparation, so long as we find them intellectually qualified for entrance. We will view them as full-fledged students and will say nothing about their pasts. That will be a void so far as we are concerned.

"What we want is to have outstanding students come to the University to pursue an education for its own sake without any regard for degrees, and see what this institution can do for them. We would like to see some people get an education without having to go through all the academic red tape it takes to get a degree."

The response to the announcement of this plan is already very encouraging, Dean Filbey said.

HOW MUCH FREEDOM IN EDUCATION?

ROSCOE PULLIAM
Superintendent of Schools, Harrisburg, Illinois

After Froebel had laid down the thesis that the child comes from nature endowed with the germ of perfection and will develop by a natural process of unfolding if only he is given a suitable environment, the famed educator seems to have been somewhat disturbed because the logical conclusion of his thesis was that the function of the teacher could be no more than the rather negative one of removing obstacles and inhibitions to the child's free development. The problem which disturbed Froebel, together with the educational *impasse* to which it leads, persists to the present day as a basic problem in the theory of education. In his recent book[1] Bagley voices a protest against the apparently increasing influence of this point of view in American education. On the other hand, the views of a number of well-known professional students of education and the opinions of a great many writers of the current non-professional literature about education and related social subjects seem to rest on assumptions similar to those of Froebel. The controversy existing in American educational theory over this basic question is well exemplified in Part II of the Twenty-sixth Yearbook of the National Society for the Study of Education.[2] A committee appointed to inquire into the direction which revision of the curriculum should take failed to come to any specific conclusions because the committee members found it impossible to agree on the basic question of whether the school can or should set specific, predetermined objectives for the pupil to reach.

The question of extreme freedom in education rests in part on the

[1] William C. Bagley, *Education, Crime, and Social Progress.* New York: Macmillan Co., 1931.

[2] *The Foundations of Curriculum-making.* Twenty-sixth Yearbook of the National Society for the Study of Education, Part II. Bloomington, Illinois: Public School Publishing Co., 1926.

issue of the relative importance of the individual and society. Some of the protagonists of extreme freedom seem to assume that there is an essential antagonism between the individual and the social group. This assumption is subject to question for two reasons.

First, complete individual freedom is not possible under any circumstances. If man should declare his complete independence of his fellows, even if it were possible for him to do so, he would immediately become the slave of the physical forces of the world, with which, by virtue of his very humanity, he is not equipped to cope. His natural advantages in the struggle for existence are the cumulative intelligence and the co-operativeness of the race. Kropotkin[1] has shown to what degree man's mutual helpfulness may have been a factor, not only in his progress, but in his sheer survival. One needs only to consider a human child during its first twelve years of life to comprehend this idea in one of its simplest aspects.

In the second place, as Cooley,[2] among others, has maintained, the individual and society are twinborn. There can be no human personality without human intercourse; there is no distinctively human existence outside society; and all of man's satisfactions above the animal level are social satisfactions, to say nothing of the fact that even such animal activities as eating and sex gratification have become heavily incrusted with social conventions and inventions that now give them some of their most satisfying values. Few civilized men, for example, enjoy eating at the purely animal level. If these things are true, there is no ultimate and essential antagonism between the individual and society; the antagonism appears only when a relatively small fraction of the impulses of the individual run counter to the safety of the group or of other individuals or when the social group becomes tyrannous and demands unnecessary conformities. Society is much more prone, the sociologists have evidence to show, to make such demands in primitive than in civilized societies. Hence, genuine study of the facts shows that Rousseau's supposedly gloriously free savage is, actually, much more subject to the tyrannies

[1] P. Kropotkin, *Mutual Aid:* A Factor of Evolution. New York: McClure Co., 1907 (revised).

[2] Charles Horton Cooley, *Human Nature and the Social Order.* New York: Charles Scribner's Sons, 1902.

of his small group than is the modern, highly civilized Frenchman or Englishman, to say nothing of the paralyzing tyrannies to which the ignorance and the ungrounded fears of the savage expose him. It is probable that man can secure a maximum of relative freedom only by making himself dependent on his fellows to a maximum degree, paradoxical as that statement may seem. A consideration of the facts which the sociologists have to offer would seem to justify the conclusion that nowhere among normal human beings is there such a self-sufficient and free being as Rousseau's "natural man"; for such a creature would be what is known as a "feral man," a sort of subhuman creature without language, tools, or cohesive thought, and without any of the other things that distinguish man from other mammals. There is a sense in which human intercourse is an element in the development of personality. In creating and developing a self to express, man is dependent in large part on his contacts with other men.

The ideal of freedom in school is sometimes expressed in the simile of the plant and the gardener. The plant holds within itself a certain capacity for development, which may be modified only in degree as the environmental factors are made more or less favorable to its growth. The gardener can see that the plant has moisture and good soil and a free chance to grow, but he cannot change its nature or the character of its fruit. The teacher, in so-called "progressive" educational theory, is the gardener. There is a sense in which this simile may be said to hold true—a sense which some of the highly formalized schools of a generation ago apparently failed to understand—but in its larger implication the simile falls far short of the whole truth. The whole of man's nature has in it an enormously larger portion which may be varied by environment than has any plant or even the most highly educable of animals. In a sense, human nature itself may be said to be the product of interaction between man and his social environment. Most modern theories of knowledge assume that all reality which we profess to know subsists exclusively neither in the objective physical world nor in the subjective world of pure mind but that it is a product of the interaction between mind and matter, identical with neither, superior to both, a synthesis which some of the German psychologists have crudely

compared to that which occurs in the union of chemical elements to make a compound. We have no reason to suppose that anything remotely approaching similarity to this synthesis occurs in the unfolding of a plant. The unfolding of a plant is a purely physical process, while education has to do precisely with the part of man that is not purely physical in the restricted sense in which plant growth is physical.

If we are to be guided by this theory, the teacher, the materials of the course of study, the general social contacts of the child become not only a part of his environment but, from the standpoint of *human* nature, by all means the most significant part. It is even through the mediation of his social environment that he becomes really aware of the details of his physical environment. Language is a social heritage: the predisposition to speak may be natural, but the use of any particular language rests on arbitrary conventions and would, in a completely logical construction of the theory of free growth, have to be considered a man-made artifact imposed on the child from without. Yet without language the world would present itself to us only in its grossest outlines; for, without names to serve as counters for images, the classifying and the generalizing by means of which man becomes familiar with his physical world could be done only in the crudest way, if at all.

Another implication of the progressive theory, recently much stressed by the protagonists of the child-centered school, is that the school should not set itself to work for remote ends, that the child should not in any sense be directed to learn things for which he does not himself feel a genuine present need, that education is life in the living present and nothing more. This theory again has in it some excellent suggestions for teaching method, but in its extreme form it is based on assumptions that are by no means axiomatic.

It assumes, first, that for man to look to the future is unnatural, when, as a matter of fact, there is abundant evidence in many phases of human conduct to indicate that man naturally leads a "pleasing anxious being," that foresight and preparation are an essential part of his humanity, that self-direction with reference to remotely anticipated ends at the cost of some thwarting of immediate impulse is a universal human characteristic.

Another assumption implied in complete self-direction motivated only by immediate ends is that human beings have a natural antipathy to direction and leadership, that to thwart spontaneously generated impulses is contrary to man's nature. Again, the observation of human behavior in and out of school does not show this assumption to be correct. Most people are followers and yearn to be directed; the number of original geniuses who have great capacity for self-direction is at best small. In its purest form of complete independence from suggestion and direction by other minds, human genius probably does not exist at all. Men differ rather widely in the degree and the quality of their dependence for direction on other men, but they are all greatly dependent on leadership, social suggestion, and the stimulation of other minds. The great appeal of the authoritative religions, even for some people of evidently superior intelligence, and the persistent vitality of these religions in the face of the mass attack of modern skepticism and science are items of evidence of the very great respect which men have for authority. Another slightly different implication of this idea is presented by Bagley[1] in his conclusion that, though few of us have any great creative power, all but the most stupid of us have the power of easy and immediate appreciation and use of that which the genius creates.

Still a third assumption implied in the theory of the child-centered school is that man achieves satisfaction only through self-expression, loosely defined in a rather superficial, hedonistic manner. The various cults of self-denial, of which monasticism at its best is a great, classic example and of which parenthood is a simple and common expression, bear witness that by no means all life-satisfactions, nor even the most important of them, lie on the surface of sensation and impulse; some of the most substantial satisfactions evidently are buried deep under distinctly human, probably cultural, accretions that have not as yet been adequately accounted for, the Freudians to the contrary notwithstanding.

We come then to the conclusion of the whole matter: that, considering all relevant evidence, we are not justified in assuming that man's nature is so simple a thing as Froebel's theory implies; that

[1] William C. Bagley, *Determinism in Education*, pp. 29–30. Baltimore: Warwick & York, Inc., 1925.

most of the developments of civilization, far from being unnatural and imposed on man by some hypothetical social force, are implicit in his nature; that there is no essential conflict between man and society; that complete freedom is a figment of the imagination, unrealizable in fact, and that practical, relative freedom is an achievement and a compromise, not by any means a free gift of nature; that the simple human being does not have within him the capacity to go far in expressing his humanity without a large amount of interaction with a social environment which consists largely in an accumulated heritage of many generations; that men do not, as a matter of fact, yearn for spontaneous self-expression half so much as they yearn for intelligent direction and that they have a remarkable capacity for grasping and following what others work out; and that hedonistic self-expression is not the only road, nor yet even a sure road, to the highest satisfactions which life affords.

There remains the significant contribution which the progressive-education movement in one form or another has made to the development of educational theory. It is true, as various reformers have maintained, that the school tends to formalisms which are not compatible with child nature, that it tends to become engrossed with subject matter until it loses sight both of the child's nature and of the real objectives of education, defined not in terms of any set subject matter but in terms of human needs. This preoccupation has frequently been, and in some instances still is, carried to the point where obsolete subject matter holds its place by virtue of tradition, sustained only by far-fetched, unreasonable assumptions of value, long after any reasonable values in terms of the real needs of any considerable number of the pupils have ceased to exist. Latin, for example, once was a necessary tool for any literate person because most of the world's heritage of learning was accessible only through that medium. Now, although not one pupil in a thousand who studies Latin ever uses it as a practical tool, it holds a prominent place in the secondary-school curriculum by virtue of an outworn tradition. The clean winds of common sense would sweep it out of the curriculum in a moment were they permitted to reach it unobstructed by the blind devotion of a majority of those who control the schools. A similar thing might be said of some other subjects.

Again, on the side of methods, most schools are too much given to dull routine, too prone to make remote needs the sole basis of their appeal to the child to do the work of the moment, too dependent on the prerogatives of the taskmaster as opposed to those of the stimulator and director of the natural activity and interests of childhood and youth. The school should certainly reach its ends by relating them as much as possible to the present interests of the children, by bringing the subject matter down to earth and home to the child's experience, and by respecting the natural lines of his growth. Educators have learned a great deal in recent years about better ways of achieving this task. The school cannot, however, leave to the child the choice of educational ends and objectives, remote or immediate. On the side of immediate objectives, there probably are some skills and fixed associations required for satisfactory participation in civilized society that will not be adequately mastered by all children, or even by most of them, without resorting to some sustained and perhaps not always entirely pleasant practice. The acquisition of the abilities to spell, to operate a typewriter, to write, and to play a musical instrument are examples of high skills that will hardly be acquired spontaneously as a result of incidental need and use by any but the most apt. Neither can we leave entirely to chance interests the acquisition of the illuminating body of fact which science has to contribute. This statement does not mean, however, that we should not mitigate the drudgery of learning as much as possible without sacrificing the objectives, that we are not obligated to continue our efforts to devise better and better means of facilitating such learning as psychology casts more and more light on the processes involved.

As for the remote objectives of education, these will be more or less definitely determined for both the pupil and the educator, whether they will or no, by the past experience of the race and by the present needs of society, both in a general and a specific sense. In America, for example, we do not decide that we will learn English as the common medium of communication. That decision has long been definitely and finally made for us by the course of history and by deeply set and, in our country, rather truculent social attitudes. Neither do we decide that, because chemistry and physics are

valuable and interesting, they are to be included in the curriculum. The course of modern technical development, in which, to be sure, past education has had a liberal share, has made some knowledge of these sciences an indispensable element in understanding the machines and processes of modern industry and the practical arts of the home and the highway. To assert that an immature child should or can choose the content of his education is, in any complete analysis, to ignore the plainest facts.

The conclusions of this discussion, then, are that the methods of the school should conform to the nature of the child; that they should employ child motives, natural impulses, and immediate purposes to the utmost possible degree; but that the ends of education and the general course which the school will take to reach these ends will be determined by the experience of the race and by the type of society into which the pupil is emerging. By the very nature of his immaturity and by his need for education, the pupil will not be able to determine these things for himself, not even in the progressively reconstructive sense in which the modern disciples of freedom would have him do it.

THE VALUE OF ESTIMATING ANSWERS TO ARITHMETIC PROBLEMS AND EXAMPLES

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EARLIER EVIDENCE

A few years ago an applicant for entrance to the State Normal School reached a figure of $207.21 as the cost of ice to fill a small refrigerator once. More recently Professor Peter Sandiford told of the engineering student in the University of Toronto who was ready to supply water for the people of that city through a pipe 0.0021 feet in diameter. These are two examples of the large number of "wild" answers which are given teachers everywhere.

Can problem-solving ability be improved by direct practice in the estimation of answers?

There are two types of evidence on the value of estimating answers for the improvement of problem-solving ability. One type is the opinion of experts; the other type, experimental results. All evidence of the opinion type is strongly in favor of estimating the answer before the problem is solved. Smith says, "Always estimate the answer in advance, write down the estimate, and compare it with the result."[1] Osburn says that the estimation of answers is very worth while and can be taught successfully.[2] Newcomb,[3] Brown and Coffman,[4] Stone,[5] Taylor,[6] Hoyt and Peet,[7] the New Jersey state

[1] David Eugene Smith, *The Teaching of Arithmetic*, p. 174. Boston: Ginn & Co., 1913.

[2] Worth J. Osburn, *Corrective Arithmetic*, II, 151. Boston: Houghton Mifflin Co., 1929.

[3] Ralph S. Newcomb, *Modern Methods of Teaching Arithmetic*, p. 284. Boston: Houghton Mifflin Co., 1926.

[4] Joseph C. Brown and Lotus D. Coffman, *The Teaching of Arithmetic*, p. 122. Chicago: Row, Peterson & Co., 1924.

[5] John C. Stone, *The Teaching of Arithmetic*, p. 182. Chicago: Benj. H. Sanborn & Co., 1918.

[6] E. H. Taylor, *Arithmetic for Teacher-Training Classes*, p. 80. New York: Henry Holt & Co., 1927.

[7] F. S. Hoyt and H. E. Peet, *Success in Teaching Arithmetic*, p. 9. Boston: Houghton Mifflin Co., 1928.

course of study in arithmetic,[1] and a teacher's manual[2] express opinions of the value of estimating answers to improve problem-solving ability.

Some of the writers mentioned, namely, Osburn, Newcomb, and Brown and Coffman, recommend the practice of estimating the answer *after* the problem has been solved. All these writers express or imply that it is desirable to compare the estimated answer with the computed answer.

Evidence of the experimental type is meager and not so consistently in favor of the practice of estimating answers. Newcomb's six-week experiment[3] with seventh- and eighth-grade classes pointed to an advantage in estimating answers. A definite technique for estimating answers was given to the pupils. The results, expressed in terms of speed and accuracy, were obtained on a standardized test. Wilson[4] records improvement on the part of sixth-grade children and pupils in an opportunity class in the specific skills of estimating answers and judging absurdities. Washburne and Osborne[5] found that practice for two weeks on estimating answers was of no more value than traditional practice in problem-solving. A longer period of practice gave the same results.

PURPOSE AND METHOD OF THE PRESENT EXPERIMENT

The purpose of the experiment reported in this article was to investigate the effect of practice in estimating answers to arithmetic problems on problem-solving ability as measured by a standardized test.

The method for the experiment was as follows: First, the writer held two round-table conferences with the fifteen sixth-grade teachers

[1] *A Teacher's Guide Book and Course of Study in Arithmetic*, p. 85. Trenton, New Jersey: State Department of Public Instruction, 1930.

[2] Thomas Alexander and Charles Madison Sarratt, *Manual for Alexander-Sarratt Arithmetics*, p. 19. Richmond, Virginia: Johnson Publishing Co., 1924.

[3] R. S. Newcomb, "Teaching Pupils How To Solve Problems in Arithmetic," *Elementary School Journal*, XXIII (November, 1922), 183–89.

[4] Estaline Wilson, "Improving the Ability To Read Arithmetic Problems," *Elementary School Journal*, XXII (January, 1922), 380–86.

[5] Carleton W. Washburne and Raymond Osborne, "Solving Arithmetic Problems," *Elementary School Journal*, XXVII (November and December, 1926), 219–26, 296–304.

and the superintendent[1] of the schools in which the experiment was carried out. Second, a standardized arithmetic test was administered on an appointed day to all the sixth-grade pupils in the public schools in Hackensack, New Jersey. Third, for fifty consecutive days the first fifteen minutes of each arithmetic period was devoted to problem-solving. The experimental group used the first five minutes of these fifteen to estimate the answers to the given problems,[2] whereas the control group used the whole fifteen-minute period to solve these given problems in the traditional manner.[3] Fourth, at the close of the fifty days of practice, the pupils were again tested on an equivalent form of the standardized arithmetic test used in the beginning of the experiment. Fifth, the results from these two tests and the intelligence quotient for each pupil (secured from an administration of the National Intelligence Test, Scale B, Form 2, on September 1, 1930) made it possible to equate on two variables, namely, arithmetical ability and intellectual capacity, and to measure the relative gains made by the experimental group and the control group.

The two round-table conferences were given over to a discussion of the aim and the procedure of the experiment. Mimeographed material, prepared by the writer, was in hand as a basis for the discussions. Co-operatively we decided that the aim of the experiment would be to evaluate the practice of estimating answers to arithmetic problems in terms of problem-solving ability—a major aim of arithmetic-teaching. An estimated answer was defined as an approximate answer arrived at without the help of objective materials, such as paper and pencil, chalk and blackboard, etc. A mimeographed

[1] Too much credit cannot be given to the fifteen teachers who made this study possible and to the late William A. Smith, superintendent of the public schools of Hackensack, New Jersey, whose untimely death resulted in a protracted delay in the completion of this study.

[2] Most of these problems were drawn up by Superintendent Smith, a co-author of *The Iroquois Arithmetics for School and Life* (Syracuse, New York: Iroquois Publishing Co., 1926). The remaining problems were made by a committee, who in turn submitted them to Superintendent Smith for approval.

[3] Problem-solving in the public schools of Hackensack, New Jersey, was rather uniform in procedure. Superintendent Smith advocated a very careful reading of the problem, followed by the technique of three-step analysis recommended by Edward Lee Thorndike in *The New Methods in Arithmetic*, p. 139. Chicago: Rand McNally & Co., 1921.

set of eight problems and a blank sheet of paper on which to record the estimates were to be provided daily for each child in the experimental group. At the close of the first five minutes of the fifteen-minute period devoted to problem-solving, these estimated answers were collected by the teacher in charge and filed. The remaining ten minutes was devoted to the solution of these eight problems (or as many as time would permit). The correct answers were then compared with the estimated answers, which had been transferred by each child to his mimeographed set of problems.

On March 2, 1931, the New Stanford Achievement Test in Arithmetic, Form V, was administered to all sixth-grade pupils, more than four hundred in all. On the next day the first set of eight problems was distributed to all pupils. On each of the succeeding forty-nine school days a new set of eight problems was distributed. At the close of this fifty-day practice period, Form W of the New Stanford Achievement Test in Arithmetic was administered to all the sixth-grade pupils. The data were then available for analysis.

IMPROVEMENT IN SOLVING PROBLEMS

The problem-solving results are shown in Table I for the experimental group and the control group equated according to intelligence quotients and scores on Form V of the test. No superiority is to be found for either group. The difference of 0.8 in the mean scores on the final test, Form W, is about one-half of its standard error and is, therefore, only a chance difference. In the case of this group, estimating answers was neither more nor less valuable than the traditional method of problem-solving. The norms for Form V and Form W as given in the *Guide for Interpreting the New Stanford Achievement Test* are: for the sixth grade, a mean of 82.7 and a standard deviation of 12.0; for the seventh grade, a mean of 86.4 and a standard deviation of 10.8. Both the experimental and the control groups made gains of approximately eight points—an advancement of more than one grade.

It was thought desirable to study those pupils whose intelligence quotients were 100 or above and whose scores on Form V were above 76 (the approximate mean scores in the case of these two variables), since it may be that superior pupils profit more than do inferior

pupils from practice in estimating answers. Only twenty-eight pupils from each group could be used. Because of this small number of cases, too much confidence must not be placed in the results. No significant superiority is shown for one group over the other, but again an advancement of one grade, from seventh to eighth, was made. The norms given in the *Guide* are: for the seventh grade, a

TABLE I

COMPARISON OF INTELLIGENCE QUOTIENTS OF EXPERIMENTAL AND CONTROL GROUPS AND THEIR SCORES ON TESTS OF ABILITY TO SOLVE ARITHMETIC PROBLEMS

Group	Intelligence Quotient		Score on Form V (Pretest)		Score on Form W (Final Test)	
	Mean*	Standard Deviation†	Mean	Standard Deviation	Mean	Standard Deviation
Entire group:						
Experimental group (99 pupils)	101.2±1.3	12.9±0.9	76.2±1.2	11.8±0.8	85.0±1.0	10.2±0.7
Control group (99 pupils)	101.3±1.3	12.7±0.9	76.2±1.2	11.8±0.8	84.2±1.0	10.2±0.7
Difference‡	− 0.1±1.8	0.2±1.3	0.0±1.7	0.0±1.1	0.8±1.4	0.0±1.0
Superior pupils:						
Experimental group (28 pupils)	111.3±2.5	13.2±1.8	85.8±3.0	15.7±2.1	91.7±1.6	8.4±1.1
Control group (28 pupils)	110.0±2.6	13.6±1.8	86.5±2.9	15.5±2.1	90.5±1.1	5.9±0.8
Difference	1.3±3.6	− 0.4±2.5	− 0.7±4.2	0.2±3.0	1.2±1.9	2.5±1.4
Inferior pupils:						
Experimental group (24 pupils)	89.3±2.1	10.3±1.5	65.3±1.1	5.5±0.8	76.1±1.8	8.6±1.2
Control group (24 pupils)	89.3±2.2	10.9±1.6	65.3±1.1	5.5±0.8	72.4±2.4	11.8±1.7
Difference	0.0±3.0	− 0.6±2.2	0.0±1.6	0.0±1.1	3.7±3.0	− 3.2±2.1

* The formula used for the standard error of the mean was $\sigma = \frac{\sigma}{\sqrt{N}}$.

† The formula used for the standard error of the standard deviation was $\sigma = \frac{\sigma}{\sqrt{2N}}$.

‡ The formula used to compute the standard error of the differences was $\sigma_{A-B} = \sqrt{(\sigma_A)^2 + (\sigma_B)^2}$.

mean of 86.4 and a standard deviation of 10.8; for the eighth grade, a mean of 91.3 and a standard deviation of 13.0. The scores of these two groups on Form W are less scattered than the scores of the eighth-grade groups from which the norms were computed.

In a similar manner a study was made of the inferior pupils, those whose intelligence quotients were below 100 and whose scores on Form V were below 76. Here again the difference between the two groups is only a chance difference. It is the largest difference found, but it is only a little larger than its standard error. When these gains

are compared with the norms, they are found to represent a gain of less than one grade. To advance from fourth grade to fifth grade requires an increment of approximately fourteen points. The inferior pupils in the experimental group made an approximate gain of only ten points—a substantial gain, nevertheless.

The conclusions thus far reached have been consistent: namely, that the problem-solving ability gained by sixth-grade pupils as a result of practice in estimating answers to arithmetic problems is neither more nor less than that gained through practice in solving problems in the traditional manner.

IMPROVEMENT IN SOLVING EXAMPLES

No plan was made in this experiment to study the value of practice in estimating answers to arithmetic examples. However, it was thought valuable to study the gains made by two equated groups when no systematic practice had been given. In this case the equating was based on intelligence quotients and ability in solving examples as measured by the second section of Form V of the test. This section of Forms V and W of the New Stanford Achievement Test in Arithmetic has sixty examples. The results from these data are reported in Table II. The analysis parallels that reported for Table I. In the case of the groups as a whole, the gains are practically equal and are slightly larger than a one-grade gain. The superior pupils in both groups show approximately equal gains of about one grade. The inferior pupils in both groups show approximately equal gains of about one grade.

SUMMARY COMMENTS

The results obtained from the analysis of the gains made in example-solving ability are consistent within themselves and are similar to those found in the analysis of the gains made in problem-solving ability resulting from practice in estimating answers to arithmetic problems. There is no superiority of one group over the other, and the gains made are approximately equal to a gain of one year in ability. The similarity of the results of the study of ability in solving problems and of the comparison of ability in solving examples is additional evidence to indicate that the practice of estimat-

ing answers to problems is probably of no *especial* value. That it was of value cannot be denied. The gains resulting from a practice period of fifty days were tremendous. It is probably safest to say that the value of estimating answers to arithmetic problems, as carried out in this experiment, is equal to the value derived from traditional practice in problem-solving.

A possible explanation of the results of this experiment is as follows: To profit greatly from estimating answers, a person must be

TABLE II

COMPARISON OF INTELLIGENCE QUOTIENTS OF EXPERIMENTAL AND CONTROL GROUPS AND THEIR SCORES ON TESTS OF ABILITY TO SOLVE ARITHMETIC EXAMPLES

GROUP	INTELLIGENCE QUOTIENT		SCORE ON FORM V (PRETEST)		SCORE ON FORM W (FINAL TEST)	
	Mean*	Standard Deviation*	Mean	Standard Deviation	Mean	Standard Deviation
Entire group:						
Experimental group (100 pupils)	100.7±1.5	14.7±1.0	81.4±1.3	12.6±0.9	88.4±1.3	13.4±0.9
Control group (100 pupils)	101.1±1.4	14.0±1.0	81.1±1.3	12.5±0.9	89.7±1.2	11.5±0.8
Difference*	− 0.4±2.1	0.7±1.4	0.3±1.8	0.1±1.3	− 1.3±1.8	1.9±1.2
Superior pupils:						
Experimental group (28 pupils)	114.5±2.3	12.4±1.7	94.2±1.3	6.8±0.9	99.9±1.6	8.3±1.1
Control group (28 pupils)	114.3±2.3	12.1±1.6	93.3±1.3	6.7±0.9	98.9±1.8	9.6±1.3
Difference	0.2±3.2	0.3±2.3	0.9±1.8	0.1±1.3	1.0±2.4	− 1.3±1.7
Inferior pupils:						
Experimental group (32 pupils)	89.3±1.6	8.8±1.1	70.0±1.1	6.1±0.8	79.9±1.9	10.8±1.4
Control group (32 pupils)	89.0±1.6	9.1±1.1	69.9±1.1	6.1±0.8	81.0±1.7	9.5±1.2
Difference	0.3±2.3	− 0.3±1.6	0.1±1.6	0.0±1.1	− 1.1±2.6	1.3±1.8

* The formulas used to compute the standard errors of these measures are the same as those given in the footnotes to Table I.

relatively mature in judgment. Sixth-grade children have reached a mental level which, if possessed by an adult, would result in an intelligence quotient of about 75. The fact that an adult with a mental level of twelve years is different from a twelve-year-old child with an intelligence quotient of 100 does not militate against the possible argument that poor judgment and failure to profit greatly from estimating answers are positively and significantly correlated.

One cannot but conjecture on the value of estimating answers for children in grades below and above the sixth. In the lower grades there would probably be no especial value accruing from the practice,

while in the more advanced grades the benefits would probably increase with advancing years.

There are several limitations to this study, two of which will be considered. The first relates to the test. It may well be that a timed, standardized test is not a valid instrument for measuring the ability under consideration. Perhaps a test in which time would not be considered would make for relatively more correct answers by the experimental group. Again, it may be that problems encountered out of school, which are not so rapidly administered as are those in the school, would be undertaken in a more reflective and deliberate manner. The second limitation relates to the technique used for estimating answers. From the start, the teachers demonstrated to the children what was meant by estimating answers. The teachers estimated the answers to a number of easy problems which were written on the blackboard. Each child was then left to his own devices to arrive at the estimates of the problems given him. This procedure was thought best by the round table. To determine whether the pupils had developed a technique for estimating answers, the writer, at the completion of the experiment, sampled ten problems taken from every fifth set of the fifty sets. On each of these ten problems a dozen estimates were gleaned in chance fashion from the total population. In general, it seemed to the writer that all these pupils had achieved techniques for arriving at their estimates. However, a standard technique might have proved superior to those arrived at by chance.

In conclusion, the evidence from this study seems to indicate that practice in estimating answers to arithmetic problems is of no more value to sixth-grade pupils than is the traditional practice in the solution of such problems. One possible explanation for the failure to profit greatly from the estimating practice is the pupils' immaturity of judgment. However, because of two limitations to this study, the conclusions must remain tentative.

FREE SERVICES OFFERED CHILDREN BY MUSEUMS AND ART GALLERIES. I

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Visiting the museum or the art gallery is a recognized use of visual aids—an aid which, when properly used, is of great value. In one form or another this idea is expressed by every authoritative writer on visual instruction. Because of the writer's experience with one particular museum staff, he was led to make a study of other institutions in order to discover what service is offered children by museums throughout the country. A further urge came from teachers in his classes in methods, who asked what were the best methods to use when taking their classes to art galleries. Some galleries have given special attention to such work, and it was felt that their experiences should be made generally available.

Much of the information desired could have been obtained by correspondence, but, because certain things could be learned only by personal observation, each of the institutions studied was visited. An effort was made to interview the curator of education. If it was impossible to reach this official, the museum's work with children was discussed with someone on the staff who had some part in it. Because the visits were made during the vacation season or because the hours of the institutions had been shortened as a result of the depression and straitened finances, only subordinates, who were not so well informed as might have been desired, could be reached in a few cases. Such interviews may bring some minor inaccuracies into the report, but for the purposes of the investigation these are undoubtedly so slight that they will not affect the general results.

A number of institutions have national reputations and could not be passed by. Others in the same cities were visited in some cases because time permitted after visiting the better-known museums. On the other hand, good museums were passed by simply because

the time did not permit visiting them after going to others that were more important from the point of view of the investigation. A number of institutions were closed at the time of the visit. A distinct effort was made to include cities of all sizes. A further effort was made to reach all the children's museums in the geographic section covered, as it was felt that these institutions should be using the best of methods in their work.

The section covered—the northeastern and the north central sections of the country and Maryland and Washington, D.C.—was chosen because half of the country's population is east of the Mississippi and north of the Ohio-Potomac. Because the cities of this section are closer together than are the cities of other sections, more could be reached in the limited time available. Good museums are found in the South and the West, which are working along the same lines as are those visited. Art galleries and natural-history museums were visited in about equal numbers, and it is felt that the results give a fair cross-section of the service being rendered by museums in the country today.

WORK BEING DONE FOR SCHOOLS

Guiding visiting classes.—Table I shows that in all but two of the institutions listed it is the duty of some member or members of the museum staff to assist visiting school classes. In most cases certain members of the staff have this work as their special field. In the Metropolitan Museum of Art, New York City, eight docents are selected because of their ability to handle such classes. During the school year they have time for little else save guiding and teaching visiting classes; in summer other work is assigned to them. Even then, however, they are subject to call in case classes come in and desire guidance. Other institutions have similar arrangements, although with fewer docents. In the Newark Museum every member of the staff must take his turn as docent. Regardless of who does it, the important thing is that the museums make provisions for this service.

Methods of arranging visits.—Two methods for arranging visits to museums are in vogue. In the first the curator of education in the museum sits down with someone appointed by the city superintend-

TABLE I

FREE SERVICES OFFERED CHILDREN BY FORTY-SEVEN MUSEUMS

CITY* AND INSTITUTION	SCHOOL ACTIVITIES			OUT-OF-SCHOOL ACTIVITIES					
	Docents Guide Visiting Classes	Lending Collections	Museum Lecturers Talk in Schools	Lecture Hours for Older Children	Club Work (Bird, Stamp, Star, Etc.)	Field Trips	Story Hours for Younger Children	Drawing Classes	Motion-Picture Hours
Hartford, Connecticut (164,072):									
Children's Museum of Hartford	×	×		×	×	×			
New Haven, Connecticut (162,655):									
Peabody Museum of Natural History, Children's Department	×				×	×	×		
Washington, D.C. (486,869):									
Freer Gallery of Art	×	×							
United States National Museum	×								
Corcoran Gallery of Art	×								
Chicago, Illinois (3,376,438):									
Art Institute of Chicago	×†	×		×				×	
Chicago Academy of Sciences	×		×						
Field Museum of Natural History	×	×	×	×					×
Museum of Science and Industry	×								
Oriental Institute Museum	×								
Indianapolis, Indiana (364,161):									
Children's Museum of Indianapolis	×	×							
John Herron Art Institute	×			×				×	
Baltimore, Maryland (804,874):									
Baltimore Museum of Art	×	×					×		
Boston, Massachusetts (781,188):									
Children's Museum of Boston	×	×		×	×	×			×
Museum of Fine Arts	×	×		×					
Salem, Massachusetts (43,353):									
Essex Institute	×								
Peabody Museum of Salem	×	×							
Worcester, Massachusetts (195,311):									
Worcester Art Museum	×	×		×				×	
Detroit, Michigan (1,568,662):									
Detroit Children's Museum	×	×					×	×	
Kansas City, Missouri (399,746):									
Daniel B. Dyer Museum									
St. Louis, Missouri (821,960):									
City Art Museum	×	×					×		
Educational Museum	×	×							
Newark, New Jersey (442,337):									
Newark Museum	×	×		×	×				
Trenton, New Jersey (123,356):									
New Jersey State Museum	×	×			×				

* The figures in parentheses show the population of the city according to the 1930 Census.

† A charge of three dollars a class is made for docent's fee.

TABLE I—*Continued*

City and Institution	School Activities			Out-of-School Activities					
	Docents Guide Visiting Classes	Lending Collections	Museum Lecturers Talk in Schools	Lecture Hours for Older Children	Club Work (Bird, Stamp, Star, Etc.)	Field Trips	Story Hour for Younger Children	Drawing Classes	Motion-Picture Hours
Albany, New York (127,412):									
Albany Institute of History and Art	×	....	....	×	....	....	×	×	....
New York State Museum	×	×‡	....	....	....	....	....	....	....
Buffalo, New York (573,076):									
Buffalo Museum of Science	×	×	....	×	×	×	×	×	×
New York, New York (6,930,446):									
American Museum of Natural History	×	×	....	×	×	....	×	....	×
Brooklyn Children's Museum	×	×	....	×	×	×	....	....	×
Metropolitan Museum of Art	×	×	×	×	....	....	×	....	....
Rochester, New York (328,132):									
Rochester Museum of Arts and Sciences	×	×	....	....	....	....	....	....	....
Memorial Art Gallery	×	....	....	....	....	....	×	×	....
Cleveland, Ohio (900,429):									
Cleveland Museum of Art	×	×	....	×	....	....	×	....	....
Educational Museum	....	×	....	....	....	....	....	....	....
Cleveland Museum of Natural History	×	....	....	....	....	....	....	....	....
Columbus, Ohio (290,564):									
Columbus Gallery of Fine Arts	×	....	....	×	....	....	×	....	....
Ohio State Museum	×	....	....	....	....	....	....	....	....
Dayton, Ohio (200,982):									
Dayton Public Library Museum	×	....	×	....	....	....	....	....	....
Toledo, Ohio (290,718):									
Toledo Museum of Art	×	....	....	×	....	....	....	×	×
Harrisburg, Pennsylvania (80,339):									
Pennsylvania State Museum	×	×	....	....	....	....	....	....	....
Philadelphia, Pennsylvania (1,950,961):									
Pennsylvania Museum of Art	×	×	....	....	....	....	....	....	....
Commercial Museum	×	×	....	....	....	....	....	....	....
Pittsburgh, Pennsylvania (669,817):									
Carnegie Museum	×	×	....	....	×	....	×	....	....
Carnegie Institute, Department of Fine Arts	×	×	....	....	....	....	....	....	....
Reading, Pennsylvania (111,171):									
Reading Public Museum and Art Gallery	×	×	×	....	....	....	....	....	....
Providence, Rhode Island (252,981):									
Park Museum	×	×	×	×	×	....	....	×	....
Milwaukee, Wisconsin (578,249):									
Milwaukee Public Museum	×	×	....	×	....	×	....	×	....

‡ The lending collection is under the same board but with a different director.

ent of schools, and together they map out a schedule for the schools of the city to follow. The teachers have no choice but to bring their classes to the museum on the dates specified. Eight or ten lecture subjects are usually listed, from which teachers may choose the particular work to be given their classes. These topics may or may not fit the work being done by the class at the time of the visit. The second method also provides a list of topics from which to choose, but the teacher decides on the time for taking her class to the museum. In this way she may fit the museum visit into the work being done in her classroom, go at a time of felt need for what the museum offers, and thus make the trip of far greater value to the pupils than in the first case. This second method is slowly driving out the first plan because of the superior results secured.

Methods used by museum docents.—Most museums have classrooms or auditoriums in which they receive the young visitors and give a preliminary lecture, customarily about thirty minutes in length. Most of these lectures are illustrated with lantern slides and are intended to arouse interest and give definiteness to the observations to be made in the thirty minutes spent in the galleries immediately after the lecture. Miss Nita Goldberg, in some carefully controlled work carried on in the Buffalo Museum of Science, found that, when the lecture was cut to fifteen minutes and the children were allowed forty-five minutes at the cases, far better results were secured than when the thirty-minute lecture plan was used. Further, if at the close of a lecture the children were given sheets of questions that could be answered only by a study of the exhibits and the labels, the upper grades did far better work than they did when a docent led them through the same gallery and indicated the pertinent things in the cases as they passed. However, younger classes did better work when guided by a docent. An interesting variation with the older classes was to let them work in groups formed spontaneously. In these groups they discussed the questions and the answers, using what they had found as evidence. Results were slightly better under this plan, although it was felt that later tests might show that there had been some sponging. Another experiment was the preparation, in advance of the visit, of silent-reading lessons on the work usually covered by the lecture. The first page was given over to vocabulary

work on the new terms that the visit would involve; the second page called attention to the outstanding points in the exhibits to be visited; and the third gave a series of incomplete statements and completion phrases to be matched as a test of the reading. This material was used in the school several days before the museum visit was made. The docents recognized at once the classes that had this preparation and found it necessary to change their presentations. In a further extension of this experimental work a series of illustrative photographs was sent to the school with the reading lesson. Classes that had had this work were so well prepared that the docents were forced to prepare advanced lectures for them.

A few years ago the staff of the Cleveland Museum of Art tested scientifically a number of methods and found that the best results were secured when a lecturer from the museum went to the school a week before a class was to make its visit and talked to the children about what they were to see, generally using lantern slides. Average and strong classes seemed to turn this lecture over and over in their minds during the intervening week and gave far better results on the check-up tests after the visit than did those who had not had this preliminary talk. Weak classes, however, were not helped unless the talk was given on the day before the visit. Apparently, pupils in the less able classes lacked the mentality to carry the thoughts during the period of a week but were able to do so for one day. In both cases the preceding lecture followed by a gallery tour was used at the museum.

While there are minor variations, the general practice in the lessons given by museum docents is to give a preliminary lecture followed by a tour of the museum or a specified part of it. The tendency is to cover a great deal of ground.

Methods used by museum teachers.—A number of boards of education, feeling that their pupils will be given better instruction by persons who have been especially trained for such work, have assigned one or more teachers to the museum to care for the classes coming from the schools. For example, the Cleveland Museum of Natural History has two such teachers; the Cleveland Museum of Art, three; the Buffalo Museum of Science, one; the American Museum of Natural History (New York City), three; the Brooklyn Children's Mu-

seum, three; the Philadelphia Commercial Museum, three and a clerk; and the Reading Public Museum and Art Gallery, two. The work of such teachers has proved satisfactory only in case they are strong teachers who are willing to do a great deal of work in becoming acquainted with the museum materials. In a few cases unassigned teachers have been sent to the museums for this work, and these have usually failed.

These teachers generally use methods somewhat different from those used by the museum docents. In the Cleveland Museum of Natural History a return postal card, sent by the classroom teacher a few days before the visit of her class, tells the museum teacher the grade, its dominant nationality, the general ability of the class (whether strong or weak), and the preparation made for the visit. This information enables the museum teacher to plan her lesson. She meets the class when it comes, calls the teacher by name, drops a word or two so that the children realize that she is, in a sense, acquainted with them. This reception establishes a mind-set which is lacking when children feel that they are dealing with an absolute stranger. The museum teacher leads the children to a classroom where she has gathered enough illustrative material to enable every pupil, as the discussion goes on, to look over, feel, or perhaps smell or taste the material under discussion. There is no lecture, rather a more-or-less informal discussion that raises a number of questions, which are left unanswered. At the close of the half-hour each child receives a card containing this list of questions, and the class goes to the cases to hunt the answers. At the close of the period the group is called to attention, and the answers are checked, often verified by the objects in the cases. The cards are carried away, and John often comes back on Sunday afternoon with Mother and Dad; his lesson merely whetted his appetite.

Charles R. Toothaker, director of the Philadelphia Commercial Museum, finds his greatest difficulty is in securing teachers with the necessary background of geographical information to do the museum teaching, and he has put in a great deal of time giving them this understanding. "But," he says, "once they have it, they can put on a better lesson than I can to save my neck. I think it is their training and experience in teaching children that makes them so successful." His teachers do not use classrooms because he has abundant

space between the cases. Chairs are placed for the class at the case containing the material illustrating the lesson. Small tables hold the illustrative materials to be handled by the children. The pupils are led to the spot, sometimes circuitously, past many things that look interesting, but no stop is made to see them. This journey is merely to tease the children; as a result, they may later bring their parents. When they have arrived at the scene of the lesson, the procedure is much like that used in Cleveland. In addition, simple processes are illustrated. For example, if the class is studying cotton and cotton manufacture, each child pulls the lint from a cotton seed, pulls the fibers over and over until they are approximately parallel to one another, moistens his thumb and finger, then twists and pulls these fibers into a crude thread. Thus, a vivid conception of the fundamental procedure in spinning is secured. Pupil participation in some form is considered essential. In case several classes are scheduled for the same topic at the same hour, a preliminary lantern-slide study in the auditorium is often made. At times classes appear without having made preliminary arrangements. These classes are not provided with teachers, but they are given an illustrated lecture, after which each child is given a question sheet and is sent to the cases to hunt the answers. The director is very strict in demanding that a certain amount of preparation be made by a class; it must have reached a point where the museum will make a definite contribution to its work before he will assign one of his teachers to give it a lesson.

Work done in art galleries.—A different situation exists in the art galleries. If the class is studying painters, the lesson is often given to teach appreciation, to show the characteristics of the work of a particular artist or a particular school of painting, or to trace the development of technique from the earliest examples to the most modern. It is only occasionally that a trip is made to study a single painting. In the Toledo Museum of Art Miss Merrill begins public-school class work with the children in the kindergarten. She sets before them, at their eye level, a painting which they can appreciate and enjoy, and they talk about it and the story that it tells. As they leave, they walk through one of the galleries, but no effort is made to do any further teaching. The class may return several times during the year, and each time it is shown a single painting.

Toledo is almost alone in beginning with primary-grade children. Public-school classes do not visit at most museums until the fourth or the fifth grade is reached. The common procedure then is to give them a preliminary lecture followed by a trip through the whole or a part of the gallery. The tendency to try to show the whole is far more general in art galleries than in natural-history museums. There is a different procedure when history classes come to visit a period room. After the lecture the pupils play a "museum game," as the use of question sheets is called. The following questions from one of the sheets used by Miss Blumberg of the Cleveland Museum of Art are typical:

1. Can you find any objects in the room which show that the Egyptian was a fine workman? What are they?
2. Did the Egyptian know how to weave? To write? What makes you think so?
3. What colors did the Egyptian artist use in his painting? Can you stand in the same position as the figures which the Egyptian artist painted?
4. Go up to a piece of sculpture in the round. Try to place yourself in the position of the figure which is carved there. How do you feel?

Ten minutes are allowed for answering such a list. The class is then called together, and each question is discussed. With more advanced classes the answers are to be made by drawing. For example, in the first question quoted the direction is "Draw one made of clay"; in the second question, "Copy one example of Egyptian writing."

Miss Blumberg and her colleagues, however, are leaders, doing work far in advance of that done by the average docent. For one person doing work of this character, there are twenty who are lecturing to children and pointing things out instead of encouraging the pupils to find items for themselves. It is the difference between the present-day idea of securing maximum pupil activity and the old pouring-in process, in which the pupil is passive. The results also are different. The museum teacher usually covers a little ground thoroughly; the docent covers much ground superficially. Many museum directors are in hearty sympathy with an educational program for children in their institutions and are making sincere efforts to secure as docents persons who have had professional training, if not teaching experience, as well as the museum background. All directors are coming to recognize that, to assure adequate support for

their institutions two decades hence, they must win the children now. Some, particularly in some conservative New England institutions and in other museums officered by men who have had their training in that section, look on the presence of children in the museum as a necessary evil. Such men, when seeking docents, look only for training in museum work. Hence, the lines between good and poor teaching of visiting classes by museum staffs will probably be rather sharply drawn for some years to come.

Transportation of pupils.—Transportation plays an important part in the visits made by classes to museums. In but five of the cities visited do the boards of education provide transportation or pay for it. In Buffalo and in Philadelphia advantage is taken of the otherwise idle time of the buses used to transport crippled children to their schools. As soon as these pupils are delivered in the morning, the buses are available for carrying classes to the museums, and they can be kept at this work until time to carry the crippled children home in the afternoon. An arrangement for transportation by bus relieves the teacher of the necessity of arranging for transportation with the traction lines and saves the drain of energy incident to overseeing her group on the street cars and at transfer points. Some curators told of teachers who absolutely refuse to take their classes to the museums when the trip involves using the street cars and transferring. Recently the factor of fares, small as they are, is the deciding one in many homes. For the teacher's protection in case of possible accidents, it is the general rule to require the written consent of the parent before a pupil is allowed to go on such a trip.

Frequency of class visits.—The number of trips made by a class during the school year varies from one to a dozen. One each semester is the average in cities where trips are required by school authorities. Schools located near museums often make weekly trips when the classes are studying special topics. Such frequent trips are made to the Chicago Academy of Sciences when the neighboring schools are studying nature-study topics and biology in the autumn and the spring. In Toledo a number of schools have classes that visit the Museum of Art once a month, and more often if some temporary exhibit is well worth while.

[*To be concluded*]

LETTER-FORM ERRORS IN LETTERS WRITTEN BY FIFTH-GRADE PUPILS

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Many studies of language errors in elementary-school compositions have shown children's mistakes in writing. These investigations have, for the most part, been based on artificial school compositions. Often children were forced to write; seldom was there true expression of individuality; and thus the results were frequently of little value. As the children did not use expression spontaneously, the mistakes made were often different from those which would have been made had the writing been spontaneous and natural. The purpose of the present article is to report the findings of an investigation designed to show the letter-form errors which were made by fifth-grade children in letters written in life outside the school.

DATA AND METHOD

The letters used in this study were part of a collection of children's life-letters made by one of the writers.[1] Children in school systems of ten states were requested to bring in letters received through the mail from their friends, children who wrote spontaneously to them. Of the 4,500 letters received from children in 41 states, 748 letters written by fifth-grade children were selected for the present investigation. Table I shows the distribution of the children who wrote these life-letters according to age, sex, and type of school attended.

A check list was constructed for the classification of the letter-

[1] James A. Fitzgerald, "The Vocabulary, Spelling Errors, and Situations of Fourth, Fifth, and Sixth Grade Children's Letters Written in Life outside the School." Unpublished Doctor's Thesis, College of Education, University of Iowa, 1931. See also James A. Fitzgerald, "The Vocabulary of Children's Letters Written in Life outside the School," *Elementary School Journal*, XXXIV (January, 1934), 358–70.

form errors. It included six main classes of error headings with thirty-nine subordinate types of errors. In order to test the reliability of this check list, Miss Geoghegan read fifty letters and checked the errors. She laid these aside and after three weeks read them again without reference to the first results. The two records of letter-form errors were similar, and the method was considered reliable for

TABLE I

CLASSIFICATION OF 748 LETTERS ACCORDING TO AGE, SEX, AND SCHOOL ATTENDANCE OF THE FIFTH-GRADE CHILDREN WHO WROTE THEM

TYPE OF SCHOOL*	NUMBER OF LETTERS WRITTEN BY CHILDREN OF AGE			TOTAL
	10	11	Other Ages	
Urban schools:				
Boys	104	60	53	217
Girls	103	100	0	203
Total	207	160	53	420
Rural schools:				
Boys	53	34	34	121
Girls	146	61	0	207
Total	199	95	34	328
Schools of both types:				
Boys	157	94	87	338
Girls	249	161	0	410
Total	406	255	87	748

* "Urban schools" refers to city, town, or village schools; "rural schools," to one- or two-room rural schools.

the purpose of this investigation. The letters in each category were then read, and the errors were checked separately. For example, the letters of the rural-school boys of ten years of age were read, and the mistakes were tabulated on error sheets. Then the mistakes were checked for another of the categories, and so on. To judge the errors, the investigator sometimes found it necessary to refer to competent authorities on style and letter form.

FINDINGS

The letter-form errors made by the fifth-grade children are indicated in Table II. This table shows that the rural-school boys made 727 mistakes in 121 letters, that the rural-school girls made 995

TABLE II

NUMBER OF LETTER-FORM ERRORS IN 748 LETTERS WRITTEN BY FIFTH-GRADE CHILDREN IN LIFE OUTSIDE THE SCHOOL

ERROR	NUMBER OF ERRORS IN LETTERS OF RURAL PUPILS		NUMBER OF ERRORS IN LETTERS OF URBAN PUPILS		ERRORS IN ALL LETTERS	
	Boys (121)*	Girls (207)	Boys (217)	Girls (203)	Number (748)	Per Cent
I. Closing:						
1. Punctuation omitted	91	135	150	126	502	13.5
2. Unnecessary capital	43	63	75	58	239	6.4
3. Incorrect placement	21	49	39	22	131	3.5
4. Closing omitted	9	13	10	15	47	1.3
5. Capital omitted	10	14	12	2	38	1.0
6. Inappropriate form	1	5	1	6	13	.4
7. Incorrect punctuation	0	2	4	0	6	.2
8. Unnecessary punctuation	1	1	3	0	5	.1
Total	176	282	294	229	981	26.4
II. Spacing and margins:						
1. Side margin omitted	129	228	193	187	737	19.9
2. General crowding	17	6	31	38	92	2.4
3. Paragraphs not indented	33	26	7	15	81	2.2
Total	179	260	231	240	910	24.5
III. Heading:						
1. Punctuation omitted between city and state	78	102	109	91	380	10.2
2. Punctuation omitted between month date and year	39	36	41	19	135	3.6
3. Heading omitted or partially omitted	9	8	16	27	60	1.6
4. Incorrect order	7	4	15	17	43	1.2
5. Crowded heading	2	3	9	4	18	.5
6. Incorrect placement	2	5	7	4	18	.5
7. Not on three lines	5	4	2	5	16	.4
8. Unnecessary punctuation	0	2	5	3	10	.3
9. Capital omitted	6	1	3	0	10	.3
10. Unnecessary capital	0	0	1	0	1	†
Total	148	165	208	170	691	18.6
IV. Miscellaneous:						
1. Erasures, blots	57	67	96	89	309	8.3
2. Illegible penmanship	34	25	50	23	132	3.6
3. Lack of consistency in use of block or semi-block form	14	6	7	5	32	.9
4. Lack of consistency in use of open or closed punctuation	6	0	2	0	8	.2
Total	111	98	155	117	481	13.0

TABLE II—*Continued*

Error	Number of Errors in Letters of Rural Pupils		Number of Errors in Letters of Urban Pupils		Errors in All Letters	
	Boys (121)*	Girls (207)	Boys (217)	Girls (203)	Number (748)	Per Cent
V. Salutation:						
1. Punctuation omitted	43	47	86	21	197	5.3
2. Incorrect punctuation	19	43	27	46	135	3.6
3. Capital omitted	8	3	9	1	21	.6
4. Incorrect placement	6	1	7	2	16	.4
5. Inappropriate form	2	2	1	4	9	.3
6. Unnecessary capital	4	0	0	1	5	.1
7. Unnecessary punctuation	1	1	1	1	4	.1
Total	83	97	131	76	387	10.4
VI. Signature:						
1. Incorrect placement	12	41	34	17	104	2.8
2. Crowded signature	6	22	22	18	68	1.8
3. Not on one line	8	22	13	22	65	1.8
4. Signature omitted	3	4	3	3	13	.4
5. Signature repeated	1	1	1	2	5	.1
6. Unnecessary punctuation	0	3	1	1	5	.1
7. Capital omitted	0	0	1	0	1	†
Total	30	93	75	63	261	7.0
Grand total	727	995	1,094	895	3,711	99.9

* The numbers in parentheses represent the number of letters examined.

† Less than 0.1 per cent.

mistakes in 207 letters, that the urban-school boys made 1,094 mistakes in 217 letters, and that the urban-school girls made 895 mistakes in 203 letters. A total of 3,711 letter-form errors were found in the 748 letters. The errors for the various age groups were tabulated, but, as no significant differences were found, the results are not presented here.

Closing errors were the most numerous. These made up 26.4 per cent of all the letter-form mistakes found. The table shows that rural-school boys made 176 such errors; rural-school girls, 282 errors; urban-school boys, 294 errors; and urban-school girls, 229 errors. The most frequent mistake in closing was the omission of punctuation. Closing punctuation was omitted by 91 rural-school boys, 135 rural-school girls, 150 urban-school boys, and 126 urban-school girls. The next most frequent source of closing error was the unnec-

essary capital; 239 instances of this mistake were recorded. Next in order of frequency of error were the incorrect placement of the closing, the omission of the closing, the omission of a capital, inappropriate form, incorrect punctuation, and unnecessary punctuation.

The second major source of error was found in spacing and margins; 24.5 per cent of the total number of errors were mistakes of this nature. Most letters had but one side margin, and some letters had none. Omission of margins was the most common single fault in

TABLE III

AVERAGE NUMBER OF LETTER-FORM ERRORS PER LETTER IN 748 LETTERS WRITTEN BY FIFTH-GRADE CHILDREN IN LIFE OUTSIDE THE SCHOOL

TYPE OF ERROR	AVERAGE NUMBER OF ERRORS IN LETTERS OF RURAL PUPILS			AVERAGE NUMBER OF ERRORS IN LETTERS OF URBAN PUPILS			AVERAGE NUMBER OF ERRORS IN ALL LETTERS
	Boys	Girls	Total	Boys	Girls	Total	
Closing errors	1.45	1.36	1.40	1.35	1.13	1.25	1.31
Spacing and margin errors	1.48	1.26	1.34	1.06	1.18	1.12	1.22
Heading errors	1.22	.80	.95	.96	.84	.90	.92
Miscellaneous errors	.92	.47	.64	.71	.58	.65	.64
Salutation errors	.69	.47	.55	.60	.37	.49	.52
Signature errors	.25	.45	.38	.35	.31	.33	.35
All errors	6.01	4.80	5.25	5.04	4.41	4.74	4.96

the letters of children, especially in those of the rural-school children. Practically one-fifth of all the letter-form mistakes were of this nature.

Mistakes in the headings comprised 18.6 per cent of the total number of letter-form errors. These errors were divided into ten types, of which omitted punctuation was the most frequent source of trouble. Miscellaneous faults and mistakes in the salutation and the signature, although not so frequent as errors in closing and in spacing, were a constant source of uncertainty and error.

The findings for the main types of letter-form errors are summarized in Table III, which gives the average number of mistakes to a letter. The table may be read as follows: rural-school boys made 1.45 closing mistakes to a letter, 1.48 errors in spacing and margins

to a letter, 1.22 errors in headings to a letter, and so on. In general, this table shows that boys made more mistakes than girls and that rural-school children made more mistakes than urban-school children. In the 748 fifth-grade letters 3,711 letter-form errors were found, an average of 4.96 errors to a letter. Rural-school children made an average of 5.25 mistakes to a letter; urban-school children, an average of 4.74 mistakes to a letter. Boys made an average of 5.39 mistakes to a letter; girls, an average of 4.61 mistakes to a letter.

CONCLUSION

The mistakes made by these fifth-grade children in closing and heading letters were amazingly numerous. It was evident that many of the children were unaware of the proper forms of salutation. Side margins were neglected by a great number of the children who wrote these letters. The signature too was often in poor form. Eighty-seven per cent of the letter-form errors noted in this investigation could have been eliminated if the following main points in letter-writing had been mastered: (1) closing—punctuation, capitalization, correct placement, and appropriate form; (2) spacing and margins—correct margins, spacing, and indentation; (3) heading—punctuation, order, correct placement, and capitalization; (4) salutation—punctuation, capitalization, correct placement, and proper form; (5) signature—correct placement, punctuation, and capitalization. Miscellaneous errors, such as blots and erasures, can be diminished if children are motivated to take pride in their letters. Model letters used properly will help the children. Careful diagnosis of the defects in the children's letters should be followed by effective remedial measures.

A PREPRIMER VOCABULARY STUDY

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The survey of the vocabularies of primers and first readers made by H. E. Wheeler and Emma A. Howell and published in the *Elementary School Journal* for September, 1930, was of much practical use to me in determining a basic reading vocabulary for my first grade. To bring the children in my class to recognize instantly and to be able to use the words in that list was a definite goal at which I aimed. The list of words was used as a guide in selecting for drill particular words that occurred in our experience charts. The list was a time-saver because the most important words of the first-grade vocabulary could be seen at a glance and given emphasis in the daily work. It was suggestive for a large picture dictionary. It took the guess out of the questions: "How well does this word have to be drilled?" "Will the child meet the word frequently enough to warrant spending a great deal of time on it?" At the end of the year the list was used as a check to discover how well I had attained my objective. I found that the pupils in the group having had the benefit of my use of the list were more sure of their vocabulary than were pupils of the same ability whom I had taught at other times and that they were able to read any primer or first reader with speed, comprehension, and expression.

The results were so gratifying that it seemed wise to find a similar measuring stick for preprimers. With the present trend of using experience charts as the basis in teaching beginning reading or in connection with definite basal readers and with the growing application of individual reading even as early as the preprimer level, it becomes necessary for the primary-grade teacher to know definitely the vocabularies of the preprimer books that the children of her class will or may read.

The following ten preprimers, all with copyright dates of 1927 or

later, were used to find the actual vocabulary and the frequencies of each word contained in preprimers now on the market.

1. Mary E. Pennell, *Playing with Pets.* The Children's Own Readers, Companion Series. Boston: Ginn & Co., 1932.
2. Mary E. Pennell and Alice M. Cusack, *Frolic and Do-Funny.* The Children's Own Readers. Boston: Ginn & Co., 1932.
3. William H. Elson and William S. Gray, *The Elson Basic Readers,* Pre-Primer. Chicago: Scott, Foresman & Co., 1930.
4. Ethel Maltby Gehres and William Dodge Lewis, *Tots and Toys.* The New Silent Readers. Philadelphia: John C. Winston Co., 1931.
5. Alberta Walker and Ethel Summy, *Let Us Read.* The Study Readers. New York: Charles E. Merrill Co., 1929.
6. Bessie Blackstone Coleman, *My First Book.* The Pathway to Reading. Newark, New Jersey: Silver, Burdett & Co., 1927.
7. Clara B. Baker and Edna D. Baker, *Toots in School.* Indianapolis, Indiana: Bobbs-Merrill Co., 1928.
8. Marjorie Hardy, *The Little Book.* The Child's Own Way Series. Chicago: Wheeler Publishing Co., 1928.
9. Marjorie Hardy, *Sally and Billy.* The Child's Own Way Series. Chicago: Wheeler Publishing Co., 1928.
10. Margaret L. White and Alice Hanthorn, *Boys and Girls at School.* Chicago: American Book Co., 1930.

The words on each page were counted. If no error was made, the sum of the frequencies of the words equaled the total number of words on the page. The results, therefore, were cross-checked. The words with their frequencies for each page were arranged alphabetically. If no error was made, the total number of words and the final sum of the frequencies must be equal. The ten lists were then combined to find the total frequency for each word. If no error was made, the final sum of all the combined frequencies must equal the total number of words in all ten books. All variants except possessives were counted separately. Possessives were counted with the singular of the words. All proper names were included. Every word was counted, including the titles of the stories and the directions. The combined vocabulary of the ten preprimers is 393 words and 8,831 words of reading material. The 238 words which appear four or more times are given in the accompanying list.

In the ranking, all words with the same frequency were grouped together. The words with the frequency of 1 were grouped at the

TABLE I

THE 238 WORDS USED FOUR OR MORE TIMES IN TEN PREPRIMERS, FREQUENCY OF USE IN EACH BOOK, AND RANK ACCORDING TO FREQUENCY OF USE IN ALL BOOKS

Word	Playing with Pets	Frolic and Do-Funny	Elson Basic Reader	Tots and Toys	Let Us Read	My First Book	Toots in School	The Little Book	Sally and Billy	Boys and Girls at School	Total	Rank
a	39	21	22	41	12	20	84	30	4	22	295	4
again				7							7	80
airplane				11							11	76
am	17	18	13			13	11	28			100	17
and	6	13	15	2	16	21	18	4	17	5	117	10
apples										10	10	77
are	4	13		3			2	7		4	33	55
at					7				3	5	15	72
ate								3	5		8	79
automobile										6	6	81
away			7	3	8	7				3	28	60
baby			23		9	9		1		12	54	35
ball			9		18					6	33	55
balloon					18	9	39				66	27
balloons						14	9				23	64
balls					1					5	6	81
bath				6					1		7	80
bee						4					4	83
began							15		9		24	63
Betty							76				76	22
big			8	16	8			3			35	53
Billy								19	26		45	43
bird				17		4	18	2			41	47
birds				4		7		1	2		14	73
black	4	4						2			10	77
blue				13	10		14				37	51
bought									2	6	8	79
bow-wow	10	9	5	6			14			9	53	36
boy						4				3	7	80
boys						9				5	14	73
brother								2		22	24	63
brown								7		4	11	76
bumble						4					4	83
bumpety					4						4	83
buy					7	7					14	73
by						3	6				9	78
bye						18					18	69
called						9			2		11	76
came				3					2	4	9	78
can	11	18	16				23				68	25
cap	21	13									34	54
caps	4										4	83

TABLE I—*Continued*

Word	Playing with Pets	Frolic and Do-Funny	Elson Basic Reader	Tots and Toys	Let Us Read	My First Book	Toots in School	The Little Book	Sally and Billy	Boys and Girls at School	Total	Rank
cat	4	4	.....	12	.....	.....	20	1	.....	3	44	44
catch	.....	.....	.....	.....	7	.....	.....	.....	.....	.....	7	80
chair	.....	.....	.....	.....	.....	.....	8	.....	.....	2	10	77
children	5	8	.....	.....	.....	.....	.....	1	.....	.....	14	73
cluck	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	6	81
come	.....	.....	23	.....	.....	7	11	.....	8	12	61	31
coming	.....	.....	.....	.....	.....	9	.....	.....	.....	.....	9	78
day	4	4	.....	.....	.....	.....	.....	.....	.....	.....	8	79
Dick	.....	.....	38	.....	.....	.....	.....	.....	.....	.....	38	50
did	.....	.....	.....	3	.....	2	20	.....	1	2	28	60
dinner	.....	.....	16	.....	.....	.....	.....	.....	.....	.....	16	71
do	4	8	.....	.....	3	.....	.....	.....	.....	.....	15	72
Do-Funny	19	24	.....	.....	.....	.....	.....	.....	.....	.....	43	45
dog	5	4	4	9	.....	.....	10	4	.....	4	40	48
doll	20	7	.....	30	.....	.....	.....	2	.....	3	62	30
dolly	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	6	81
down	.....	.....	.....	4	14	19	.....	.....	3	.....	40	48
duck	.....	.....	.....	7	.....	.....	.....	.....	.....	.....	7	80
eating	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	4	83
farm	.....	.....	.....	.....	.....	.....	.....	14	5	.....	19	68
farmer	.....	.....	.....	.....	.....	.....	.....	10	.....	.....	10	77
father	7	22	18	8	.....	13	5	12	8	8	101	16
find	11	7	6	21	.....	10	.....	.....	.....	.....	55	34
flew	.....	.....	.....	3	.....	6	.....	.....	.....	.....	9	78
for	22	9	.....	8	.....	.....	13	.....	3	11	66	27
found	5	7	.....	.....	.....	.....	.....	.....	2	.....	14	73
four	.....	.....	.....	.....	.....	7	.....	3	1	.....	11	76
frolic	13	21	.....	.....	.....	.....	.....	.....	.....	.....	34	54
from	12	8	.....	.....	.....	.....	.....	.....	.....	.....	20	67
funny	.....	.....	12	.....	.....	.....	7	.....	.....	4	23	64
garden	.....	.....	.....	.....	.....	.....	14	.....	1	.....	15	72
girl	.....	.....	.....	.....	.....	5	.....	1	.....	2	8	79
girls	.....	.....	.....	.....	.....	5	.....	.....	.....	5	10	77
give	3	4	.....	2	.....	.....	.....	.....	.....	2	11	76
go	7	4	.....	.....	8	10	25	.....	.....	.....	54	35
going	1	7	.....	.....	.....	.....	6	.....	.....	.....	14	73
good	.....	.....	.....	.....	.....	14	.....	1	.....	9	24	63
good-by	.....	.....	7	.....	.....	.....	.....	.....	.....	.....	7	80
got	.....	.....	.....	.....	.....	.....	17	.....	2	.....	19	68
grandmother	.....	.....	7	.....	.....	.....	.....	.....	.....	.....	7	80
green	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	8	79
guess	8	8	7	4	.....	.....	.....	.....	.....	.....	27	61
guessed	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	8	79
had	.....	.....	.....	10	.....	.....	.....	.....	1	6	17	70
hammer	.....	.....	.....	.....	.....	.....	7	.....	.....	.....	7	80
happy	.....	.....	4	.....	.....	.....	.....	4	.....	.....	8	79

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TABLE I—*Continued*

Word	Playing with Pets	Frolic and Do-Funny	Elson Basic Reader	Tots and Toys	Let Us Read	My First Book	Toots in School	The Little Book	Sally and Billy	Boys and Girls at School	Total	Rank
has	7	4	.....	.....	.....	.....	.....	25	.....	5	41	47
have	6	26	.....	.....	.....	.....	.....	4	.....	3	39	49
he	12	18	8	10	.....	4	5	8	5	20	90	19
hear	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	5	82
heard	4	4	.....	.....	.....	.....	.....	.....	1	.....	9	78
hello	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	5	82
hen	.....	.....	.....	7	.....	.....	.....	1	.....	.....	8	79
her	14	5	.....	.....	.....	.....	.....	.....	5	.....	24	63
here	8	5	27	.....	.....	.....	10	.....	.....	2	52	37
hide	17	14	.....	.....	.....	.....	.....	.....	1	.....	32	56
hiding	2	7	.....	.....	.....	.....	.....	.....	.....	.....	9	78
his	10	11	.....	.....	.....	.....	.....	.....	.....	5	26	62
home	.....	.....	.....	.....	.....	.....	24	6	7	.....	37	51
house	32	31	7	7	.....	.....	26	4	.....	.....	107	13
how	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	5	82
I	77	72	31	11	4	29	44	46	1	4	319	3
in	22	35	2	13	.....	.....	23	6	5	14	120	9
into	.....	.....	.....	.....	.....	.....	6	2	1	21	30	58
is	20	33	36	29	11	18	41	40	.....	14	242	5
it	9	34	9	34	1	.....	11	8	.....	.....	106	14
Jack	27	37	.....	6	.....	.....	51	.....	.....	.....	121	8
Jane	.....	.....	36	.....	.....	.....	.....	.....	.....	.....	36	52
Joe	.....	.....	.....	14	18	.....	.....	.....	.....	.....	32	56
jump	5	.....	11	.....	7	.....	.....	.....	.....	.....	23	64
jumped	2	6	.....	.....	.....	5	.....	.....	.....	.....	13	74
Junior	.....	.....	.....	42	.....	.....	.....	.....	.....	.....	42	46
kitten	.....	.....	4	.....	.....	.....	.....	5	.....	.....	9	78
laughed	.....	.....	7	.....	.....	.....	.....	.....	.....	1	8	79
leaves	4	6	.....	.....	.....	.....	.....	.....	.....	.....	10	77
let	.....	.....	.....	.....	6	.....	4	.....	.....	.....	10	77
like	19	10	.....	3	.....	.....	7	1	.....	3	43	45
liked	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	6	81
likes	5	2	.....	.....	.....	.....	23	.....	.....	.....	30	58
little	5	8	16	12	7	31	26	15	.....	3	123	7
live	.....	.....	.....	.....	.....	.....	.....	11	.....	.....	11	76
lives	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	5	82
look	1	4	17	.....	7	.....	2	.....	.....	.....	31	57
looked	8	28	.....	.....	.....	.....	.....	.....	5	.....	41	47
made	13	9	.....	11	.....	.....	.....	.....	.....	21	54	35
make	10	4	9	.....	.....	.....	4	.....	.....	2	29	59
man	.....	.....	.....	5	2	7	6	2	.....	.....	22	65
Mary Ann	.....	.....	.....	36	.....	.....	.....	.....	.....	.....	36	52
me	12	5	.....	4	12	.....	4	.....	.....	.....	37	51
meow	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	8	79
mew	12	8	16	.....	.....	.....	10	.....	.....	.....	46	42

TABLE I—*Continued*

Word	Playing with Pets	Frolic and Do-Funny	Elson Basic Reader	Tots and Toys	Let Us Read	My First Book	Toots in School	The Little Book	Sally and Billy	Boys and Girls at School	Total	Rank
milk	.....	.....	.....	.....	.....	.....	8	1	1	.....	10	77
Molly	.....	.....	.....	.....	.....	.....	54	.....	.....	.....	54	35
morning	.....	.....	.....	.....	.....	14	.....	.....	1	8	23	64
mother	19	25	14	7	.....	17	.....	12	9	9	112	11
my	15	16	.....	4	10	7	8	1	.....	2	63	29
name	5	4	.....	.....	.....	.....	.....	.....	.....	.....	9	78
Nan	36	27	.....	.....	.....	.....	.....	.....	.....	.....	63	29
no	.....	.....	.....	3	.....	.....	6	.....	.....	.....	9	78
not	6	14	12	5	.....	2	16	.....	5	7	67	26
of	.....	.....	.....	6	.....	.....	.....	1	.....	.....	7	80
oh	.....	.....	13	5	1	4	9	.....	.....	.....	32	56
on	.....	.....	.....	.....	.....	8	13	12	2	2	37	51
one	10	7	4	....	13	18	.....	5	1	.....	58	32
open	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	4	83
orange	.....	.....	.....	.....	10	.....	.....	.....	1	.....	11	76
our	.....	.....	.....	.....	.....	.....	.....	1	.....	19	20	67
paint	.....	.....	.....	4	.....	.....	.....	.....	.....	2	6	81
painted	.....	.....	.....	14	.....	.....	.....	.....	.....	1	15	72
party	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	4	83
pet	10	4	.....	15	.....	.....	.....	.....	.....	2	31	57
Peter	.....	.....	.....	.....	.....	29	.....	.....	.....	.....	29	59
picture	10	13	.....	9	.....	.....	.....	.....	.....	2	34	54
pictures	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	9	78
play	4	9	5	.....	5	.....	21	.....	2	5	51	38
played	.....	.....	.....	.....	3	.....	.....	.....	4	.....	7	80
playhouse	.....	.....	.....	.....	.....	.....	.....	.....	.....	11	11	76
playing	6	3	.....	12	.....	.....	.....	.....	.....	.....	21	66
Polly	.....	.....	.....	.....	.....	22	.....	.....	.....	.....	22	65
pussy	.....	.....	.....	7	.....	.....	.....	.....	.....	.....	7	80
put	.....	.....	.....	.....	.....	.....	8	.....	.....	5	13	74
quack	.....	.....	.....	6	.....	.....	.....	1	1	.....	8	79
rabbit	5	10	5	.....	.....	.....	.....	.....	.....	.....	20	67
rabbits	.....	8	3	4	.....	.....	.....	.....	.....	.....	15	72
ran	8	10	11	4	8	.....	50	.....	2	12	105	15
read	.....	.....	.....	.....	.....	2	9	.....	.....	2	13	74
red	5	7	.....	12	.....	4	17	.....	.....	3	48	40
roller	.....	.....	.....	5	.....	.....	.....	.....	.....	.....	5	82
rooster	.....	.....	.....	.....	.....	5	.....	.....	2	.....	7	80
run	10	5	30	.....	5	.....	20	6	.....	1	77	21
said	14	47	72	48	17	6	112	.....	2	16	334	2
Sally	.....	.....	.....	.....	16	.....	.....	19	28	.....	63	29
sang	.....	.....	.....	.....	2	9	.....	.....	.....	.....	11	76
sat	.....	.....	.....	.....	.....	7	10	.....	.....	.....	17	70
saw	.....	.....	4	22	.....	.....	29	.....	17	.....	72	24

TABLE I—*Continued*

Word	Playing with Pets	Frolic and Do-Funny	Elson Basic Reader	Tots and Toys	Let Us Read	My First Book	Toots in School	The Little Book	Sally and Billy	Boys and Girls at School	Total	Rank
say	5	6	.....	.....	.....	.....	.....	1	.....	.....	12	75
school	4	5	.....	2	.....	.....	10	2	.....	4	27	61
see	.....	.....	36	25	10	3	13	.....	.....	6	93	18
seesaw	.....	.....	.....	.....	.....	16	.....	.....	1	.....	17	70
she	20	13	5	16	.....	.....	.....	6	10	8	78	20
sister	.....	.....	.....	.....	.....	.....	.....	2	.....	17	19	68
skate	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	4	83
sky	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	4	83
snowball	.....	.....	.....	.....	.....	.....	31	.....	.....	6	37	51
some	.....	.....	3	.....	.....	.....	6	.....	2	.....	11	76
something	.....	.....	10	3	.....	.....	.....	.....	.....	.....	13	74
Spot	.....	.....	21	.....	.....	.....	.....	.....	.....	22	43	45
stone	.....	.....	.....	.....	.....	4	17	.....	.....	.....	21	66
stop	.....	.....	.....	.....	.....	.....	20	.....	.....	.....	20	67
store	.....	.....	.....	7	4	.....	.....	.....	3	16	30	58
supper	.....	.....	.....	.....	.....	.....	.....	.....	5	.....	5	82
swim	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	8	79
swing	.....	.....	.....	.....	15	.....	.....	.....	.....	.....	15	72
tables	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	5	82
tap	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	6	81
the	44	45	14	78	23	21	99	35	29	25	413	1
then	8	9	.....	4	1	11	.....	.....	6	1	40	48
there	.....	.....	.....	.....	.....	7	.....	.....	4	.....	11	76
they	4	15	9	13	4	.....	.....	5	19	3	72	24
this	6	4	9	.....	5	.....	.....	10	.....	8	42	46
three	.....	.....	5	.....	6	13	.....	1	1	.....	26	62
to	42	34	13	12	8	18	60	.....	22	12	221	6
Tom	.....	.....	.....	.....	.....	.....	7	.....	.....	.....	7	80
too	6	6	.....	8	.....	.....	.....	6	.....	.....	26	62
took	.....	.....	.....	7	.....	.....	.....	.....	3	.....	10	77
Toots	.....	.....	.....	.....	.....	.....	78	.....	.....	.....	78	20
town	.....	.....	.....	.....	.....	.....	7	.....	.....	.....	7	80
toy	.....	.....	.....	5	4	.....	.....	.....	.....	.....	9	78
tree	.....	.....	.....	1	4	7	14	2	1	.....	29	59
trees	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	4	83
tried	.....	.....	.....	8	.....	.....	.....	.....	.....	.....	8	79
turtle	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	4	83
tweet	.....	.....	.....	.....	.....	.....	11	.....	.....	.....	11	76
two	4	4	4	.....	6	12	.....	.....	1	.....	31	57
up	.....	.....	.....	2	15	29	23	.....	4	.....	73	23
wagon	.....	.....	.....	.....	.....	.....	.....	4	.....	.....	4	83
wake	.....	.....	.....	.....	.....	7	.....	.....	.....	.....	7	80
want	15	10	6	.....	5	6	6	.....	1	.....	49	39
wanted	8	.....	.....	.....	.....	.....	.....	.....	.....	2	10	77
wants	1	.....	5	.....	.....	.....	.....	.....	.....	.....	6	81
was	21	17	.....	12	.....	5	.....	.....	5	2	62	30
water	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	6	81

TABLE I—*Continued*

Word	Playing with Pets	Frolic and Do-Funny	Elson Basic Reader	Tots and Toys	Let Us Read	My First Book	Toots in School	The Little Book	Sally and Billy	Boys and Girls at School	Total	Rank
we	.....	.....	.....	.....	3	.....	3	13	.....	34	53	36
went	.....	.....	6	11	4	.....	29	.....	18	.....	68	25
were	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	5	82
what	9	21	12	5	6	.....	.....	3	.....	.....	56	33
where	6	14	8	.....	6	14	9	.....	.....	7	64	28
while	.....	.....	.....	.....	.....	.....	.....	4	.....	3	7	80
who	6	9	.....	1	.....	.....	29	.....	.....	.....	45	43
will	.....	.....	6	.....	3	.....	13	.....	.....	9	31	57
with	17	9	.....	.....	6	.....	13	.....	2	.....	47	41
wood	.....	.....	.....	6	.....	.....	.....	.....	.....	.....	6	81
yard	13	17	.....	.....	.....	.....	.....	.....	.....	.....	30	58
yellow	5	4	.....	10	.....	.....	4	3	.....	3	29	59
yes	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	8	79
you	16	25	8	10	10	25	14	.....	.....	.....	108	12

head of the list, those with the frequency of 2 were grouped next, and so on through the list to the frequency of 413. Each frequency group was then numbered: the highest, 413, ranked 1; the next highest, 334, ranked 2; to the lowest, 1, which ranked 86. Therefore, a word which appeared 23 times ranked 64 whether that word was "jump," "funny," or "balloons" (each of which appeared 23 times).

It should be clearly understood that a word list of this sort should not be used to the exclusion of other devices in the teaching of beginning reading. Experience charts, children's poems, stories, rhymes, action sentences, etc., play most important rôles in setting the stage for a healthy and happy reading situation. Naturally, these experience charts will be recorded in the vocabulary used by the children, whether or not the words used are contained in any preprimer word list. Definite drill on the words or phrases of these charts may be aided by this list or one similar to it.

To use this list or a similar one as the only basis for teaching children a preprimer reading vocabulary would defeat the very purpose of beginning reading, that is, to foster, nurture, and develop a growing interest in reading. What a deadening effect would result if the words were drilled in the order of their frequencies, in alphabeti-

cal order, or in any order, merely as words. The uninteresting, monotonous, wearying drill on words that have no real meaning to the child would kill all joy and spontaneity and make reading the deadest, drabbest, and most colorless experience in his entire school life. The wise teacher will not let a list of this kind dominate her reading situation. She will use it as a help, a guide, a measuring stick; she will use it for what it is worth to her particular class; and the use made of the list will be determined in the light of the principles that are known to govern a good reading program.

Through the use of the preprimer vocabulary I knew definitely the reading material which should be taught in order that the children might be successful when they started to read from books. As many words as possible were illustrated by drawings or magazine pictures, which were mounted on heavy cards with the words printed beneath the illustrations. The cards were classified into various groups—action words, family words, names of colors, adjectives, outdoor words, names of objects in the room—and were arranged in a place where they could be seen by all the children. Through the use of all sorts of games, charts, and drills, the words were easily and permanently acquired. A record of each child's progress was kept, and, when the majority of the words had been introduced and had become practically automatic, many preprimers were put at the child's disposal to be read at his own speed. Because he had met and mastered the vocabularies of these books, he experienced a feeling of success. When a feeling of success accompanies the introduction of books, a long step has been taken toward making reading a joyful experience.

SELECTED REFERENCES ON ELEMENTARY-SCHOOL INSTRUCTION[1]

I. Curriculum, Methods of Teaching and Study, and Supervision

LEO J. BRUECKNER
University of Minnesota

In this bibliography are included selected publications in the field of the elementary-school curriculum, methods of teaching and study, and supervision of elementary-school instruction which appeared during the period from April 1, 1933, to March 31, 1934. Although a systematic scrutiny was made of the publications of the period indicated, it is probable that valuable contributions have been overlooked. In the section on methods of teaching are listed only those publications dealing with general methods. Studies of special methods in the fields of particular subjects are summarized in the lists of references dealing with the several subjects which will appear in the October and the November numbers of the *Elementary School Journal*.

Curriculum[2]

297. *The Activity Movement.* Thirty-third Yearbook of the National Society for the Study of Education, Part II, Bloomington, Illinois: Public School Publishing Co., 1934. Pp. xii+320.

An analysis of the activity movement in American education, including a historical discussion of its development, an analysis of definitions of "activity" by forty-two persons, and a critical appraisal of the movement by leaders in education.

[1] This list is one of a cycle of twenty lists of selected references covering all major aspects of the field of education which is being published co-operatively by the *Elementary School Journal* and the *School Review*.

[2] See also Items 374 and 386 in the list of selected references appearing in the October, 1933, number, Items 418 and 443 in the November, 1933, number, and Item 236 in the June, 1934, number of the *Elementary School Journal*, and Items 15 and 16 in the January, 1934, number and Item 107 in the February, 1934, number of the *School Review*.

298. BAGLEY, WILLIAM C. "The Task of Education in a Period of Rapid Social Change," *Educational Administration and Supervision*, XIX (November, 1933), 561–70.

The author favors a fairly uniform curriculum for the elementary schools and is doubtful of the value of making radical revisions to meet social change.

299. DARSIE, MARVIN L. "The Philosophic Origins of Progressive Education," *School and Society*, XXXVIII (September 30, 1933), 417–22.

Summarizes briefly the educational ideals and ideas of Rousseau, Pestalozzi, Froebel, Herbart, Hall, and Dewey.

300. *Elementary School Libraries*. Twelfth Yearbook of the Department of Elementary School Principals. Bulletin of the Department of Elementary School Principals, Vol. XII, No. 5. Washington: Department of Elementary School Principals of the National Education Association, 1933. Pp. 117–576.

A compilation of helpful materials dealing with the use of libraries in the elementary school.

301. FITZGERALD, JAMES A. "The Vocabulary of Children's Letters Written in Life outside the School," *Elementary School Journal*, XXXIV (January, 1934), 358–70.

A report of an investigation of children's voluntary letters. A word list with frequency of use and frequency of error for each word is given.

302. HAMLEY, HERBERT RUSSELL. *Relational and Functional Thinking in Mathematics*. Ninth Yearbook of the National Council of Teachers of Mathematics. New York: Teachers College, Columbia University, 1934. Pp. 216.

Contains a discussion of the history of the function concept in arithmetic and other branches of mathematics, its psychology, and a suggested course of study based on the function concept.

303. HANNA, PAUL R. "Social Studies in the New Virginia Curriculum," *Progressive Education*, XI (January–February, 1934), 129–34.

Describes an effective curriculum in which the social studies emphasize activities, such as excursions, experimentation, research, construction, experiences, appreciation, and the use of many textbooks and printed materials, instead of textbook methods.

304. HARAP, HENRY, and MAPES, CHARLOTTE E. "The Learning of Fundamentals in an Arithmetic Activity Program," *Elementary School Journal*, XXXIV (March, 1934), 515–25.

Presents the results of a study showing that fundamentals in fractions are efficiently learned when they arise in activity units in a random order without further practice.

305. HOPKINS, L. THOMAS. "Learning Essentials in an Activity Curriculum," *Journal of Experimental Education*, I (June, 1933), 298–303.
Presents test results showing the extent to which children in a typical activity curriculum mastered the tool subjects.

306. KANDEL, I. L. *The Dilemma of Democracy*. Inglis Lecture, 1934. Cambridge, Massachusetts: Harvard University Press, 1934. Pp. 80.
The 1934 Inglis Lecture deals with the issue of an educational program based on extreme individualism and freedom as against a program based on the "acceptance of certain clear and definite objects of social allegiance" (p. 78).

307. KELTY, MARY G. "The Processes of Learning History in Middle Childhood," *Historical Outlook*, XXIV (December, 1933), 445–55; *Social Studies*, XXV (January, 1934), 21–31.
The author believes that experimental evidence discourages organization of the curriculum in terms of large social problems for children nine to twelve years of age.

308. KILPATRICK, WILLIAM H. (Editor), and OTHERS. *The Educational Frontier*. New York: Century Co., 1933. Pp. vi+326. (Published also as Yearbook XXI of the National Society of College Teachers of Education. Chicago: University of Chicago Press, 1933.)
A composite statement by seven educational thinkers of the basic philosophy of education in a democratic society.

309. KINNEMAN, JOHN A. "Social Change and the Curriculum," *School and Society*, XXXVIII (September 30, 1933), 422–27.
Presents a plea for helping the child to adjust himself to his changing environment by teaching him facts of social significance.

310. LIDE, EDWIN S. "Textbooks and Curriculum," *The Legal Basis of Education*, chap. xi. Review of Educational Research, Vol. III, No. 5. Washington: American Educational Research Association of the National Education Association, 1933.
Deals with the legal aspects of the school-textbook situation and the legal controls of the contents of the curriculum.

311. LONG, FRANK M. *Desirable Physical Facilities for an Activity Program*. Teachers College Contributions to Education, No. 593. New York: Teachers College, Columbia University, 1933. Pp. viii+116.
Contains a brief historical sketch of the evaluation of physical facilities of the school, an analysis of the activity program, the facilities provided for children from kindergarten through Grade VI in twenty progressive schools, and conclusions growing out of the study.

312. MADSEN, I. N. "How Practical Is 'Progressive Education' for Public Schools of Today?" *Educational Administration and Supervision*, XIX (April, 1933), 249–59.
Points out the confusion and inconsistency in theory, the practical difficulties, and the present status of progressive education.

313. MEIER, W. H. D. "Trends in Elementary Science Education," *Education*, LIV (November, 1933), 150–53.

The need of a well-balanced program in science is evident from a study of school programs.

314. MELROSE, MARY. "The Significance of Science to the Pupil in the Elementary School," *School Science and Mathematics*, XXXIII (November, 1933), 819–25.

Discusses the possibilities and the practicability of elementary science in the curriculum.

315. NEWLON, JESSE H. "The Administration of the Curriculum," *Educational Method*, XII (May, 1933), 474–80.

Doing away with "fads and frills" does not mean going back to the three R's. Curricular changes should be made with respect to cultural progress and social change.

316. REINOEHL, C. M. "Home-Room Subjects in Platoon Schools," *Elementary School Journal*, XXXIV (February, 1934), 438–53.

A study of the relative efficiency of platoon and non-platoon schools from the standpoint of pupil progress and achievement in common school subjects.

317. SISSON, EDWARD O. "Statistical Determination of the Social Science Curriculum," *Journal of Educational Research*, XXVII (September, 1933), 41–45.

Shows the statistical limitations of several studies because of weighting items, the process of ranking, and mere verbalism.

318. SNEDDEN, DAVID. "A Great Gap in American Educational Planning: For Effective Learnings of Political Citizenship," *Education*, LIV (September, 1933), 1–5.

Maintains that the present curriculum provides no "direct preparations for adult exercise of the kinetic or more dynamic virtues of political citizenship under democratic conditions" (p. 1).

319. YATES, IDA M. "Concepts and Attitudes concerning Slander and Freedom of Speech," *Journal of Educational Research*, XXVII (December, 1933), 283–97.

An important contribution to the techniques of curriculum-making in the social studies. It deals with the changes in the concepts and attitudes of children concerning slander and free speech from Grade VI to the college level.

320. ZIRBES, LAURA, and LA BRANT, LOU. "Social Studies in a New School," *Progressive Education*, XI (January–February, 1934), 88–94.

Discusses the social-studies program in an experimental school at Ohio State University embracing kindergarten, elementary grades, and three years of the high school.

METHODS OF TEACHING AND STUDY[1]

321. BRUECKNER, LEO J. "The Validity and Reliability of Educational Diagnosis," *Journal of Educational Research*, XXVII (September, 1933), 1–10.

Discusses problems related to the validity and the reliability of widely used techniques of diagnosis and suggests problems that should be investigated.

322. FARLEY, EUGENE S., FREY, ALBIN J., and GARLAND, GERTRUDE. "Factors Related to the Grade Progress of Pupils," *Elementary School Journal*, XXXIV (November, 1933), 186–93.

Shows definite relations between grade progress and ability and achievement. No significant relation is shown between grade progress and socio-economic status nor between grade progress and character rating.

323. HECK, ARCH O. (Chairman). *Pupil Personnel, Guidance, and Counseling.* Review of Educational Research, Vol. III, No. 3. Washington: American Educational Research Association of the National Education Association, 1933. Pp. 183–278.

Contains valuable discussions of research related to school progress, marks, record, guidance, extra-curriculum activities, and special schools and classes.

324. *Individualization of Instruction.* The Norm, Vol. XV, No. 1. Philadelphia, Pennsylvania: Philadelphia Normal School, 1934. Pp. 120.

A series of articles dealing with various issues on the individualization of instruction, including administrative and supervisory problems and instructional procedures.

325. MCELWEE, EDNA WILLIS. "Homogeneous Grouping of Retarded Pupils," *Elementary School Journal*, XXXIV (October, 1933), 118–21.

Presents data illustrating the difficulty of classifying retarded children because of wide differences in their ability in arithmetic and reading.

326. MCKEE, PAUL. *Language in the Elementary School.* Boston: Houghton Mifflin Co., 1934. Pp. x+482.

A comprehensive discussion of spelling, composition, and writing in the elementary school, including an analysis of the methods of selection and gradation of curricular materials and an analysis of methods of teaching.

327. MACLEOD, KENNETH M. "Comparison of Three Types of Organization in the First and Second Grades," *Educational Method*, XII (March, 1933), 354–59.

An experiment with the traditional, the traditional plus remedial instruction, and the unit or activity organization led to the conclusion that any of the three

[1] See also Items 307, 316, 320, 323, and 382 in the list of selected references appearing in the October, 1933, number, Item 434 in the November, 1933, number, and Item 146 in the April, 1934, number of the *Elementary School Journal*, and Item 38 in the January, 1934, number, Item 327 in the May, 1934, number, and Item 396 in the June, 1934, number of the *School Review*.

organizations will produce results if managed by a good teacher. The activity plan seems to lessen the break between kindergarten and Grade I.

328. MORRISON, J. CAYCE. "Trends in Educational Method," *Educational Method*, XIII (December, 1933), 129–37.

An analysis of recent trends in educational methods based on quotations from various writers.

329. RETAN, GEORGE A. *Management and Teaching Technique in the Elementary School.* New York: Prentice-Hall, Inc., 1933. Pp. xx+370.

An attempt to integrate a treatment of *Gestalt* psychology and idealism in philosophy with management and teaching technique.

330. STONE, CLARENCE R. "Case Studies in Reading and Deductions on Retardation," *Elementary School Journal*, XXXIV (September, 1933), 50–57.

An analysis of cases of reading disability leading to a plea for intrinsic reading.

331. TABA, HILDA. *The Dynamics of Education: A Methodology of Progressive Educational Thought.* London: Kegan Paul, Trench, Trubner & Co., Ltd., 1932. (New York: Harcourt, Brace & Co.) Pp. xvi+278.

Criticizes present educational practices and emphasizes the necessity of adjusting thought and ideals to society through education.

332. THORNDIKE, EDWARD L., AND STAFF OF THE DIVISION OF PSYCHOLOGY, INSTITUTE OF EDUCATIONAL RESEARCH, TEACHERS COLLEGE. *An Experimental Study of Rewards.* Teachers College Contributions to Education, No. 580. New York: Teachers College, Columbia University, 1933. Pp. 72.

Reports a series of new experiments on the effect of rewards on learning.

333. WEST, PARL. *A Study of Ability Grouping in the Elementary School.* Teachers College Contributions to Education, No. 588. New York: Teachers College, Columbia University, 1933. Pp. vi+70.

Presents data regarding the variability of pupil achievement in ability groups and discusses the teaching and the pupil-adjustment problems involved.

SUPERVISION[1]

334. ABELSON, HAROLD H. *The Art of Educational Research.* Yonkers-on-Hudson, New York: World Book Co., 1933. Pp. xii+332.

A stimulating guide to procedures for use in the study of instructional problems.

[1] See also Items 339 and 396 in the list of selected references appearing in the October, 1933, *Elementary School Journal*, and Item 40 in the January, 1934, number, and Items 324, 326, and 329 in the May, 1934, number of the *School Review*.

335. ADAMS, JAMES TRUSLOW. "Can Teachers Bring About the New Society?" *Progressive Education*, X (October, 1933), 310–14.

A criticism of the pronouncement of the Progressive Education Association's Committee on Social and Economic Problems.

336. BAGLEY, WILLIAM C. "Modern Educational Theories and Practical Considerations," *School and Society*, XXXVII (April 1, 1933), 409–14.

The author discusses what appears to be a serious limitation of the modern progressive-education movement.

337. BARR, A. S. "Science and Philosophy in Supervision," *Education*, LIII (June, 1933), 587–93.

A critical discussion of the need of basing a philosophy of education on all available facts and of the necessity of a constant appraisal of one's own philosophy.

338. BREED, FREDERICK S. "What Is Progressive Education?" *Elementary School Journal*, XXXIV (October, 1933), 111–17.

Progressive education is described as a formula of reconstruction which lacks scientific verification.

339. BRIM, ORVILLE G. "Reconstructing Our Concept of Scientific Supervision," *Education*, LIII (June, 1933), 577–87.

An attempt to show how in the supervision of instruction the concept of teacher growth may be applied instead of a formal, abstract appraisal of teaching performance.

340. BROWNELL, WILLIAM A. "Some Neglected Safeguards in Control-Group Experimentation," *Journal of Educational Research*, XXVII (October, 1933), 98–107.

Discusses some limitations of experimental procedures used in the study of problems of learning and teaching.

341. BRUECKNER, LEO J. "The Supervisory Analysis of Teaching," *Education*, LIII (June, 1933), 601–10.

A critical appraisal of available techniques for making objective analyses of activities in the classroom as a basis for evaluating instruction.

342. CASE, R. D. "Platoon School Supervision and How It Differs from Supervision in the Conventional School," *Educational Administration and Supervision*, XIX (October, 1933), 544–47.

The chief difference is that the platoon school has no "teaching supervisors" in the sense used in the conventional school because each teacher is a specialist in her subject.

343. CASWELL, HOLLIS L. *Non-Promotion in Elementary Schools*. Field Studies No. 4. Nashville, Tennessee: Division of Surveys and Field Studies, George Peabody College for Teachers, 1933. Pp. x+100.

Examines the status of the problem, the relation of non-promotion to difficulty of instruction, and suggests methods of solving the difficulties.

344. CLEM, ORLIE M., and HOVEY, CHESTER W. "Comparative Achievement of Village-School Pupils and Rural-School Pupils," *Elementary School Journal*, XXXIV (December, 1933), 269–72.

Reports that on a wide series of achievement tests the means of village-school pupils in all cases exceeded the means of rural-school pupils.

345. COE, GEORGE A. "Shall We Indoctrinate?" *Progressive Education*, X (March, 1933), 140–43.

The author would define the terms more closely than is usually done and discusses the implications of indoctrination.

346. CROOKS, A. DURYEE. "Marks and Marking Systems: A Digest," *Journal of Educational Research*, XXVII (December, 1933), 259–72.

A summary and evaluation of most of the contributions found in the literature on marking.

347. FREDERICK, ROBERT W., and HALTER, HELEN. "Conflicting Attitudes toward Supervision," *Educational Administration and Supervision*, XIX (April, 1933), 307–14.

Gives the results of a questionnaire submitted to college Seniors and to teachers.

348. FREEMAN, FRANK N. (Chairman). *Methods and Technics of Educational Research.* Review of Educational Research, Vol. IV, No. 1. Washington: American Educational Research Association of the National Education Association, 1934. Pp. 120.

A summary of methods of research in various fields, including curriculum-making, measurement, and experimental study of teaching methods prepared by the chairman of forthcoming issues in this series of reviews of research.

349. GRAY, WILLIAM S., with the assistance of GERTRUDE WHIPPLE. *Improving Instruction in Reading.* Supplementary Educational Monographs, No. 40. Chicago: Department of Education, University of Chicago, 1933. Pp. xiv+226.

Discusses the problems that arose in a supervisory program in reading covering a period of years and evaluates the effectiveness of the program.

350. GREENFIELD, B. L. "A Study of the Effectiveness of a Program of Elementary School Supervision," *Journal of Educational Research*, XXVII (October, 1933), 123–26.

An experimental study of the value of supervision, which did not yield clear-cut results. Although there was improvement in teaching practices, there was no material advance in pupil achievement.

351. HAGGERTY, M. E. *Children of the Depression.* Day and Hour Series, No. 6. Minneapolis, Minnesota: University of Minnesota Press, 1933. Pp. 26.

Presents crucial facts concerning problems faced by the schools because of economic and political issues growing out of the depression.

352. HOWELL, ETTA; DUNN, MAUDE WILSON; and STOKER, DORA. "Measuring the Skills in an Integrated Program," *Journal of Experimental Education*, I (June, 1933), 316–19.

Contains data concerning measurement of skills in a progressive school and discusses the limitations of available tests as measures of educational outcomes.

353. HULSIZER, ALLAN. "Georgetown: An Experiment in Rural Education," *Progressive Education*, X (October, 1933), 345–49.

The possibilities of applying principles of progressive education to a rural situation are described.

354. MCGINNIS, W. C. "A Study of Supervision," *School and Society*, XXXVIII (October 21, 1933), 545–48.

The investigator found that, in a questionnaire concerning desirable qualities of supervision submitted to five hundred teachers, the items listed by at least one-third of the three hundred who responded were, in order of importance: co-operation, sympathy, professional ability, leadership, superior scholarship, pleasing personality, and good health.

355. MEAD, CYRUS D. "Scaling and Improving the Lesson Assignment," *Elementary School Journal*, XXXIV (November, 1933), 194–202.

Contains a statistical scale for rating lesson assignments.

356. MOORE, CLYDE B., and COLE, WILLIAM E. "The Status of Rural Supervisors of Instruction in the United States: VII. Some Supervisory Difficulties of Rural Supervisors," *Educational Method*, XII (April, 1933), 397–99.

The chief difficulties of four hundred rural supervisors as a group were: too heavy supervisory load, poorly qualified teachers, too much time spent in travel from school to school, teachers untrained to utilize supervision, and lack of professional library for the supervisor's use.

357. MORRISON, J. CAYCE. "A Modern Concept of the Elementary School Principal as Supervisor," *Education*, LIII (June, 1933), 611–17.

Reviews research dealing with the supervisory function of the principal and the confusion that grows out of conflicting conceptions of his function.

358. MORRISON, J. CAYCE. "Recent Research in Civics and Character Education," *School and Society*, XXXVIII (September 23, 1933), 385–91.

Summarizes the implications for character education of research in civics.

359. PAULU, E. M. "Scientific Supervision in Rural Schools," *Educational Administration and Supervision*, XIX (April, 1933), 241–48.

An objective analysis of supervision in the schools of Pope County, Minnesota, with a diagnosis of reading needs and remedial suggestions.

360. SYMONDS, PERCIVAL M. "Needed Research in the Teaching of English," *English Journal*, XXII (June, 1933), 447–56.

A discussion of needed research in the curriculum and methods of teaching English.

361. WILLEY, MALCOLM M. "Recent Social Changes and Educational Research," *Journal of Educational Research*, XXVII (January, 1934), 321–32.

A discussion of some of the educational implications growing out of data reported in *Recent Social Trends in the United States*.

362. WILSON, GUY M. "For 100 Per Cent Subtraction, What Method? A New Approach," *Journal of Educational Research*, XXVII (March, 1934), 503–8.

Presents data showing wide variations in the methods of teaching subtraction used in schools throughout the country and suggests the advisability of having all schools agree on one method in order that a typical source of confusion in learning may be eliminated.

363. WRIGHTSTONE, J. WAYNE. "Measuring Teacher Conduct of Class Discussion," *Elementary School Journal*, XXXIV (February, 1934), 454–60.

Describes the reliability of an objective technique for analyzing the procedures used by the teacher in conducting class discussions.

Educational Writings

REVIEWS AND BOOK NOTES

Applications of scientific studies to education.—Professor Pressey has added another to the numerous attempts that have recently been made to formulate the contents of educational psychology into a coherent system. He has industriously canvassed the current literature for studies bearing on the growth and mental development of children. He has reported the results of numerous such studies and has pointed out the applications of these to teaching. The outcome of his efforts is a book[1] which is informing and stimulating. It will be found serviceable for students in teacher-training institutions. Professor Pressey has prepared supplementary pamphlets to be used by teachers in directing students in their study and in testing classes which are using his textbook.

Part One of the book, entitled "Development during the School Years," opens with a summary of the physiological facts which have recently been discovered with regard to physical growth, health, and pathology. Following the introductory discussions there are chapters dealing with play and the groups to which the child belongs, such as the family, the neighborhood group, and the school. In a subsequent chapter attention is given to emotional states and the emotional development of children. The classification of children with respect to their individual characteristics follows a complete discussion of the nature of intelligence and the measurement of intelligence.

Part Two, entitled "Learning in School," is a generalized discussion of such topics as learning curves, transfer of training, methods of directing learning, and hygiene of mental work rather than an account of the progress of pupils in particular school subjects. Much of the illustrative material under each of the general headings in this part of the book is drawn from studies of learning in school subjects. The treatment may therefore be said to include both a general discussion of the learning process and an introductory account of the discoveries that have been made with regard to the way in which pupils acquire particular subjects.

The book contains a great many practical suggestions. This fact justifies the statement that the author has combined more than do most writers on educational psychology a treatment of methods of teaching with discussions of the

[1] S. L. Pressey, *Psychology and the New Education.* New York: Harper & Bros., 1933. Pp. xxxii+594. $2.25.

strictly scientific aspects of psychology. The final chapter, entitled "A Foreword to the Education of the Future," is a striking illustration of Professor Pressey's interest in the applications of psychology. Here he gives expression to the hope that the effort to find proper applications will react on the science of psychology so as to correct the present deficiencies which arise from the immaturity of that science.

The book is open to the general criticism that it is an assemblage of facts rather than a system of psychology. The author becomes so fully absorbed in the presentation of empirical facts that he often omits fundamentals. For example, the writer of this review read the chapter entitled "The Social Psychology of Childhood and Adolescence" with disappointment because of its wholly inadequate treatment of the social relations of childhood. There is no appreciation of the fact that adult society transmits to children a rich inheritance of the achievements which make up civilization. Professor Pressey is so fully occupied in showing that there is a society of childhood that he overlooks almost entirely the advantages the child receives from living in a larger society which supplies him with such indispensable psychological equipments as language and laws. With respect to the relation of adults to children, Professor Pressey's discussions are largely negative.

The chapter on transfer of training fails to take into account the fact that generalized experience is the essence of intelligence. It perpetuates the fallacy that training is and should continue to be highly particular. There can be little doubt that in recent times school training has been for the most part particular. Any investigation based on present school practices will, of course, show a heavy weighting of the results of teaching in that direction. On the other hand, all the studies which have been made of the higher forms of thought demonstrate beyond the possibility of doubt that training which emphasizes particulars is wholly inadequate. Some of the scientific investigations reported by Professor Pressey show the importance of generalization. There are other investigations of this type which, if included in this book, would have led the author to a more comprehensive view of transfer. The formalism of the older types of education which consisted in drill and in the cultivation of memory of particular items has not been banished from the schools. It will persist as long as the doctrine of identical elements as the basis of transfer continues to be accepted and taught to prospective teachers.

CHARLES H. JUDD

Implicit emotions and explicit attitudes in scenes from the cinema.—What happens within a child as he sits in silent (or noisy) contemplation of the shifting scenes of the motion picture? Various studies in the Payne Fund Studies of Motion Pictures and Youth show some of the effects in knowledge and attitude. Dysinger and Ruckmick,[1] however, have attempted to assay some of the subtle

[1] Wendell S. Dysinger and Christian A. Ruckmick, *The Emotional Responses of Children to the Motion Picture Situation*, pp. xiv+122. Combined with Charles C. Peters, *Motion Pictures and Standards of Morality*, pp. vi+286. Payne Fund Studies of Motion Pictures and Youth. New York: Macmillan Co., 1933. $2.00.

physiological changes which are the assumed (and partially demonstrated) concomitants of emotional excitement. The psychogalvanic reflex and pulse rate were employed as the chief indices. Age, sex, and individual differences were investigated in laboratory and theater settings.

In the laboratory situation representative silent sixteen-millimeter films were projected, with a method for recording reactions which involved the synchronization of a psychogalvanograph record of an observer's responses with scenes from the films. The usual methods for balancing bodily resistance and controlling external stimuli were employed. After the showing of the film questions were directed to the children to determine whether particular parts had made large subjective impressions. The apparatus was also set up for use in commercial theaters. In the theater setting the films observed were such as occurred during the normal course of commercial presentation. In each case a preview was made in order to note the significant scenes at which readings were to be made.

Eighty-nine observers with an age range of about six to fifty years were used in the laboratory part of the experiment. Sixty-one observers were used in the theater. Of these, nineteen clustered around nine years of age, twenty-one around sixteen years of age, and eighteen around twenty-two years of age. The enormous individual differences in the psychogalvanic response and the small number of cases at each age level made it very difficult to secure clear-cut trends for the various types of analysis.

The general findings were that scenes of tragedy, conflict, and danger elicit responses the intensity of which decreases with age. Scenes involving love and sex show maximum reactions at age sixteen, with lessened responses among adults and further reductions for children under twelve.

Errors of perception of young children are sufficient to affect radically the understanding of the story. These children often "miss the point" which somewhat older children understand and respond to. The adult perception of the artificiality of the picture introduces what has been called an "adult discount" with a consequent diminution in emotional reaction. Repeated observation of the same picture decreases the amount of the deflection. Responses of the male observers to the danger scenes exceeded those of the female observers, but no consistent sex differences were found in reactions to love scenes.

Conclusions in the field of social control appear to the investigators to be too far from the data of their study for the expression of an opinion. The personal equation is so large as to be the chief factor in any generalization. They are agreed, however, that profound mental and physiological effects of an emotional order are produced. The motion picture thus emerges as an effective agent in the affective life of children.

Peters was interested in analyzing the extent to which the content of motion pictures subscribes to certain standards of morality as represented in the mores of the people. His first task was to develop a scale of situations of a known degree of approval or disapproval in order that it might be employed as a yardstick for judging the motion picture. Four general trends were selected for the

development of scales: the aggressiveness of a girl in love-making, democratic attitudes and practices, treatment of children by parents, kissing and caressing. Short descriptive paragraphs were made of fragments of conduct on the basis of observation of pictures and experience. These descriptions were then submitted to groups of students and faculty members, socially élite young women, factory boys, and factory girls. The instructions were to sort into three piles according to whether the person approved, disapproved, or was neutral concerning the incident described. It was then possible, by the usual scaling technique, to place all the items on an "approval-disapproval" scale with known values based on the percentage of judgments of a given scene which tended toward the approval side. Actual motion pictures were then rated by having observers classify scenes and pictures in terms of the scales. An average rating could be assigned to a film on the basis of the ratings of situations in it. It soon became obvious that one observer could not rate a film with sufficient accuracy to be trusted in a serious appraisal. Various methods for committee judgment and for pooling judgments were tested. By pooling the judgments of as many as five observers working independently, the investigator was able to establish an index which could be relied on.

The extent of divergence of practices in motion pictures from the approval index of various criterion groups was determined. Thus, a large percentage of scenes showing female aggressiveness in love-making fall below the approval index. Kissing, however, appears to be at about the level of the mores. Democratic practices, as measured by scenes involving the treatment of persons on the basis of social, occupational, or racial conditions, seem on the whole to be above the mores. In the attitudes of parents toward children the motion-picture standards are above the approval standards of the mores and appear to set patterns that challenge admiration more often than patterns that elicit condemnation.

Since average scale values were secured for a large number of pictures in the course of the study, it was possible to determine the relation between these values and certain appraisals of the enjoyment of the films by groups attending theaters. There is a rather consistent tendency for people to express approval of those films which secure a desirable rating on the scales. Because of the secrecy with which producers guarded box-office data, the commercial criterion could not be employed. This information would have represented a more crucial answer to the questions concerning the factors which determine the commercial success of films.

A supplementary study of the motives to which appeal is made in advertising motion pictures is introduced. The final chapter indicates further possibilities for research, and the Appendix gives the complete scales that were used. The Appendix contains superfluous material on well-known statistical techniques. There is also a tendency to encumber the main argument with elementary statistical method.

The scales developed and the approach illustrated should be useful in a varie-

ty of studies. With a minimum of generalization, the scales may be taken to represent the judgments of composite groups concerning conventional attitudes. Uniformities in such judgments are clearly demonstrated. While an attempt was made to have each statement arouse personal feeling in the individuals responding and to secure immediate non-critical reactions, the reviewer is doubtful whether the attempt was successful, at least for sophisticated subjects. The study does not answer the methodological question raised concerning all present-day attitude studies: What is the relation between verbal opinion on intellectualized situations and actual behavior responses in life-settings? Unequivocal answers to this question are hard to find.

The two studies reviewed occupy a worthy place in the Payne Fund series, which should be examined as a whole in order to appreciate the importance of the motion picture and the complexity of crucial analysis and evaluation.

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Studies in the nature and genesis of artistic talent.—Like most pioneer investigations, a series of studies on the development of talent in art[1] approaches the problem from a rather eclectic point of view. Of the eleven studies included in the series, the first five deal with attempts at measuring various aspects of artistic capacity in young children. The abilities studied include discrimination of compositional balance (studied by Parmely Clark Daniels), sensitivity to rhythm in graphic form (studied by Constance C. Jasper), to compositional unity (studied by Katherine Snow Whorley), and to color harmony (studied by Eileen Jackson Williams and William E. Walton). These investigations make use of unselected groups of subjects and have as their object the study of the genetic emergence of various phases of artistic capacity.

In a second group of four studies, children thought to be artistically superior are compared with those rated as artistically inferior. The first of these (by Velma Bookhart Grippen) is an attempt at an analysis of the process by which the memory images of children are transformed into balanced composition and design. In other words, this study is concerned with the functioning of artistic imagination as it operates in the creation of art products. The second study (by Mildred Dow) compares artistically gifted and non-artistically gifted children with respect to their behavior on the school playground. The third (by Frances Rodgers) compares aesthetic factors in the home backgrounds of artistic and non-artistic children, while the fourth (by Carolyn Tiebout) compares the performances of artistic and non-artistic children on a number of fairly well-known psychophysical tests.

The two final studies differ from the foregoing in that college students were

[1] *Studies in the Psychology of Art.* Under the direction of Norman C. Meier. University of Iowa Studies in Psychology, No. XVIII. Psychological Monographs, Vol. XLV, No. 1. Princeton, New Jersey: Psychological Review Co., 1933. Pp. viii+188.

used as subjects instead of young children. Of these, the first (by Hildegarde Fried Dreps) employs a method similar to that used by Tiebout. The test performances of a group of college students talented in art were compared with those of a second group having little artistic ability. The final study (by Wilhelmina E. Jacobson) analyzes the basic aesthetic factors in costume design by comparing the judgments of 162 unselected subjects who had little training in art with those of thirty-three "experts" (teachers of art or of costume design) as to the aesthetic qualities of pictured costumes.

The techniques of investigation employed in these studies are, almost without exception, highly original, and the problems attacked seem fundamental to an understanding of the genesis of artistic ability. It is particularly unfortunate, therefore, that the statistical treatment of the data and the presentation of results are frequently ambiguous or of doubtful validity. For example, contingency coefficients appear to have been converted into Pearson r equivalents by the simple process of dividing the obtained contingency coefficients by the highest possible value for a given number of cells, a procedure which is erroneously attributed to Kelley. For these coefficients the probable error given is that of the converted r, which lends an unwarranted appearance of reliability to the findings. In the comparative studies of artistic and non-artistic children, the number of cases available for study is usually small, and the differences between groups are, in many instances, obviously attributable to one or two individual cases. In a number of instances inadequate explanations of the procedures employed in treating the results render an evaluation of the findings exceedingly difficult. For example, in Jacobson's study of factors influencing judgments of costume design, Table V (pp. 163–64), which is headed "The Per Cent of Non-analytical and Analytical Judgments as Determined by Experts and Non-Experts," has proved completely inexplicable both to the reviewer and to a number of other persons well trained in statistical techniques to whom it has been shown. In this table certain columns consistently add to 200 per cent, others to varying amounts but for the most part to more than 200 per cent. The accompanying text throws no light on the methods employed. In some instances the difficulty appears to result from careless labeling of tables, as in Table IV of the Jasper study, in which the heading "Correction for attenuation" is erroneously given a group of reliability coefficients corrected by the use of the Spearman-Brown prophecy formula.

In spite of these criticisms, the studies offer a wealth of suggestion to the research worker who is interested in the nature and the genesis of special talent. In these days, when much of the published research follows a set pattern, it is indeed refreshing to find many new and original ideas between the covers of a single volume.

FLORENCE L. GOODENOUGH

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The relative merits of annual and semiannual promotions.—During the last seventy years many plans have been proposed for making the pupil's progress through the elementary school less rigid and mechanical. The proposals have been largely of two kinds. Some have involved a reorganization or reconstruction of the graded school pattern. Among the better-known plans in this group are the junior high school plan, the individualized-instruction plans, and the platoon-organization plan. Other plans have attempted to lessen the lock-step evil without changing the grade pattern that has been typical of the elementary-school system since 1860. In the second category are included proposals for increasing the amount of individualized instruction, plans involving parallel series of classes, subdivision of classes into groups, promotion by subject, and plans providing for a shortening of the period between promotions. The proposals for increasing the flexibility of promotion have probably received as much, if not more, attention than any of the other plans. As early as 1865 variations from the original scheme of annual promotion were adopted by particular school systems. Today promotion intervals of various lengths are used, ranging from less than a quarter of a school year to a full year. Of the different promotion periods in effect, the annual and the semiannual are the most common.

The existence of many varying promotion periods in the schools suggests the need for an objective comparison of their effects, on the basis of which, presumably, the optimum promotion period might be determined. Lindsay in his study[1] endeavors to satisfy this need as far as the relative merits of annual and semiannual promotions are concerned. The first section of his study contains a review of the factors bearing on this problem, out of which he develops four bases of comparison. These bases include the school as an educational service agency for pupils, the flexibility of the mechanisms for progress of pupils through the school, the improvement in the instructional offering, and the cost of the educational program provided. The second section gathers together the available evidence of desirable and undesirable effects traceable to the two promotion plans in terms of the four basic themes. The last division develops the conclusion of the study by a process of algebraic summation, in which the canceling effect of contradictory evidence is allowed for and conclusions are drawn from the residual arguments.

The study recognizes the fact that no promotion scheme or administrative device is in itself a panacea for educational ills. Furthermore, account is taken of the recent attempts to de-mechanize school progress that have been the natural outcomes of a changing philosophy of education. Promotion plans are intended to serve different purposes in accordance with different educational philosophies. Thus, the traditional elementary-school philosophy tends to facilitate the separation of pupils on the basis of attainment, while the transitional or newer phi-

[1] J. Armour Lindsay, *Annual and Semi-annual Promotion:* With Special Reference to the Elementary School. Teachers College Contributions to Education, No. 570. New York: Teachers College, Columbia University, 1933. Pp. viii+172. $1.75.

losophy is more likely to aim at a separation on the basis of age. Recognition of such differences enhances the value of the study.

Neither type of promotion demonstrated any significant superiority when examined in terms of the four selected bases of comparison. The modicum of superiority found after offsetting positive arguments by equivalent negatives slightly favors the annual type of promotion. A more important contribution of the study is the implication, drawn from the conclusion and the analysis of the contradictory evidence, that the length of the promotion term is not the controlling factor in providing the most satisfactory elementary-school program. A large number of complex factors are operative in an inextricably interwoven pattern in determining desirable pupil progress through the elementary grades. No significant nor even distinct superiority was traceable to the type of promotion plan used in the school systems considered in this study.

C. T. ANDERSEN

DETROIT PUBLIC SCHOOLS

The case method applied in the training of teachers.—The case method, which has been used more or less widely for years in many of the social sciences, has been applied increasingly of late in the field of education. Some of the best-known examples of such applications are in the field of vocational guidance, diagnosis and remedial treatment, and the work of the visiting teacher. An additional use of the method has been described in detail by Sperle[1] in a report on the case-method technique in the training of student teachers. As defined in this report, a "case study" involves "the careful description, definition, and interpretation of an actual condition or situation" (p. 1) encountered by the student teacher. The method used is essentially a laboratory technique, in which the student teacher studies the source materials derived from his experiences in teaching, analyzes them to determine the principles on which the solution of his problem depends, and then applies them in the pursuit of his practical activities as a teacher.

Sperle's report is divided into two major divisions. The first presents a survey of the use of the case method in law, medicine, sociology, psychology, and education "in order to arrive at a clearer understanding of the term, and to discover the underlying facts and principles, with the aim of making a better application of this method in teacher training" (p. 1). The second describes and evaluates the case method as used in the New Jersey State Teachers College at Montclair.

After experimenting with various schemes for reporting case problems, the

[1] D. Henryetta Sperle, *The Case Method Technique in Professional Training:* A Survey of the Use of Case Studies as a Method of Instruction in Selected Fields and a Study of Its Application in a Teachers College. Teachers College Contributions to Education, No. 571. New York: Teachers College, Columbia University, 1933. Pp. vi+92. $1.50.

author developed a record card which provided space for the following items: statement of the problem, description of the problem, student's suggestions, training teacher's suggestions, solutions attempted, supervisor's suggestions, progress made, conclusions or evaluation, and further questions. This card was used by 164 Seniors who did their supervised teaching during 1931–32 in 91 schools in 70 towns and cities distributed throughout the state of New Jersey. A total of 449 case problems were reported, which were classified with respect to the teaching fields and the type of teaching problem represented.

In an effort to determine the value of the case method, a questionnaire was submitted to a small group of students and staff members. The first section of the questionnaire attempted to find out the phases of the work in which problems occurred most frequently. The results of the questionnaire study were compared with the case problems actually reported. Another section of the questionnaire sought to secure the students' judgments of the value of the use of the case method in the study of their teaching problems. The terms were tabulated and given a rank value. Similar studies were made of the value of group discussions of case problems and other campus activities relating to them. An effort was also made to determine the relative value of the various courses taken in preparing the students to deal with each of the seven types of case problems identified.

The reports submitted were very favorable to the use of the case method in training student teachers. The students found it an excellent means of helping them to recognize, analyze, and solve problems encountered in teaching. The staff members found it to be a useful means of helping them to keep in touch with the situation in the field, a practical aid in curriculum revision and construction, and a source of helpful suggestions in professionalizing subject matter and in unifying the work in the various phases of the training program. An obvious weakness of the study is the fact that many of the values reported reflected merely the opinion of the co-operators. Nevertheless, the report shows clearly that in the study of their problems student teachers can use the case method to distinct advantage. It remains to determine experimentally the extent and conditions under which the method can be used to greatest advantage.

WILLIAM S. GRAY

A treatment of mental hygiene for teachers and administrators.—Mental hygiene has become the keystone of the new bridge between the static, impersonal, factual elements of education and culture and the needs, rights, and aspirations of the individual as a personality. Bassett's book[1] is a genuinely helpful contribution to the fast growing literature which interprets mental hygiene to professional people.

[1] Clara Bassett, *Mental Hygiene in the Community*. New York: Macmillan Co. 1934. Pp. 394. $3.50.

Chapters on medicine, law, education, theology, industry, and recreation indicate the breadth of the treatment; but one sees clearly that every physician, for example, should read every chapter. Teachers at all levels of instruction will find this book instructive and stimulating. Public officials and administrators will find it invaluable.

GEORGE D. STODDARD

UNIVERSITY OF IOWA

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